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January 13 2011

Ms. Charlene Falco
Illinois Environmental Protection Agency
Bureau of Land, #24
Federal Site Remediation Section
Federal Facilities Unit
1021 North Grand Avenue East
Springfield, Illinois 62702

**Re: Final Removal Action Limit Assessment Report
OU4: Off-site Soils
New Jersey Zinc/Mobil Chemical NPL Site, DePue, Illinois**

Dear Ms. Falco:

Please find enclosed two copies of the Final Removal Action Limit Assessment Report for Operable Unit 4 of the DePue Site. An electronic version of the complete report is also provided on the attached CD. The report has been finalized in accordance with the April 13, 2010 Illinois Environmental Protection Agency (IEPA) approval.

If you have any questions or comments regarding the enclosed document, please feel free to contact us.

Sincerely,

ENVIRON International Corporation

Mark A. Travers
Principal

Christopher J. Greco
Manager

COPY

Enclosures

cc: Kevir Philips – Ecology and Environment
Jay Timm – IEPA (2 copies)
Mark Gurnik – IEPA
Connie Sullinger – IEPA
Elizabeth Wallace – Assistant Attorney General
Joe Abel – ExxonMobil Corporation
Jeff Groy – CBS Operations Inc.
Russ Cepko – CBS Operations Inc.
Steve Walker – Terra Environmental Services

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Removal Action Limit
Assessment Report
OU4: Off-Site Soils
DePue Site
DePue, Illinois

COPY

Prepared for:
**Illinois Environmental
Protection Agency**

On behalf of:
The DePue Group

Prepared by:
**ENVIRON International Corporation
Chicago, Illinois**

Date:
January 2011

Project Number:
21-12046C

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1 Introduction

1.1 Overview

In October 2005, the DePue Group submitted the Removal Action Limit (RAL) Assessment Report to the Illinois Environmental Protection Agency (IEPA) describing the results of the RAL Assessment conducted in association with the New Jersey Zinc/Mobil Chemical site (referred to as the DePue Site), located in the Village of DePue, Bureau County, Illinois (Figure 1). On January 23, 2006, the DePue Group received *Comments on the RAL Assessment Report* from the IEPA. The DePue Group submitted *Responses to the Comments on the RAL Assessment Report* on April 5, 2006. On September 14, 2006, the DePue Group received additional comments and recommendations from the IEPA. Pursuant to the January and September 2006 comments and subsequent discussions with IEPA, the DePue Group has prepared this *Revised RAL Assessment Report*.

This revised report presents the results of the RAL Assessment of soils from 17 specific off-site properties in the vicinity of the DePue Site in the Village of DePue, Bureau County, Illinois (Figure 1). These 17 off-site properties represent a subset of Operable Unit (OU) 4, which is defined as the Off-Site Soils Area. The term "off-site" refers to the New Jersey Zinc/Mobil Chemical facility property as the "site" and/or as "the former plant site area (FPSA)." The remainder of OU4 will be addressed in subsequent work plans, specifically the Off-Site Soils Remedial Investigation (RI) Work Plan (in revision).

The RAL Assessment described in this report was conducted because soil sampling conducted in 1992 by the Illinois Department of Public Health (IDPH) suggested that RALs were exceeded at 17 off-site properties. Similar sampling conducted in 1992 by the Illinois Environmental Protection Agency (IEPA) did not indicate any RAL exceedances. Regardless, at the request of IEPA, the RAL Assessment described in this report was developed to evaluate whether levels of select metals currently exceed RALs on the 17 off-site properties.

The RAL Assessment included the collection of surface and subsurface soil samples from the 17 off-site properties. The number and locations of sampling points on each off-site property were selected with the concurrence of IEPA. Samples were collected from front, side, and back yard areas, gardens (if present), and/or drip zones/downspouts, and were composites from up to four depth intervals. Composite samples formulated from sets of discrete samples, and selected discrete samples were analyzed by field x-ray fluorescence (XRF) methods. A subset of composite and discrete samples also was submitted for laboratory analysis. The composite sample data were evaluated in the field, and based on these results, discrete samples were selected for analysis by XRF and (as applicable) laboratory methods.

The RAL Assessment Work Plan (BBL, 2005) also included a field reconnaissance to identify areas of potentially site-related fill and to compile information concerning the location, size, and physical description of special use areas such as parks, playgrounds, and schools in the off-site soils study area. The identification of potentially site-related fill material also included surveys of DePue area residents regarding potential locations of fill material and interviews with past employees and officials from the Village of DePue. The reconnaissance was conducted by walking the streets, alleys, and rail corridors within the off-site soils study area and recording

observations of possible site-related fill (including clinker, retort, and briquette). The off-site soils study area has been generally defined as the area between 1400 North Avenue to the north, Negro Creek to the east, DePue Lake to the south, and Oakbrook Drive to the west. The results of this research and reconnaissance will be reported in the revised Off-Site Soils RI Work Plan and used to develop the scope of sampling activities in that work plan.

1.2 Objectives

The specific objectives of the RAL Assessment discussed in this report are as follows:

- Identify and sample locations where previous IDPH data suggests RALs may be exceeded;
- Conduct a correlation study to determine the feasibility of using XRF for measuring metals concentrations for RAL exceedances and for future investigative activities; and
- Delineate the extent of RAL exceedances (if applicable).

1.3 Report Organization

This report discusses the off-site properties identified for RAL Assessment soil sampling, describes the soil sampling and field and laboratory analytical methods, presents the data evaluation procedures, and presents recommendations for focused follow-up assessment efforts as a part of the Off-site Soils RI based on the results of the RAL Assessment. The report has been formatted into the following sections.

Section	Contents
1. Introduction	Provides a brief description of how this work plan relates to the overall plan for OU-4, and identifies objectives of the proposed RAL Assessment.
2. RAL Assessment Procedures	Describes the specific RAL Assessment procedures, including sample locations, sample collection procedures, and field and laboratory sample analyses procedures
3. RAL Assessment Results	Provides an evaluation of the RAL data with respect to the Assessment objectives.
4. Summary/Recommendations	Summarizes RAL conclusions and recommends focused follow-up activities for the Off-Site Soils RI.
5. References	Provides the references cited in this report.

Additional details on the RAL Assessment are provided in the RAL Assessment Work Plan (BBL, 2005) and supporting documents, including the existing site-wide plans: (Quality Assurance Project Plan, (QAPP) Field Sampling Plan (FSP), Health and Safety Plan (HASP), and Data Management Plan (DMP) (Golder, 1999a through 1999d); RAL Assessment Work Plan appendices, including Appendix 3 (FSP Addendum), 4 (QAPP Addendum), and Appendix 5 (HASP Addendum) (BBL, 2005); and RAL Assessment field changes and clarifications (Appendix A to this report).

2 RAL Assessment Procedures

2.1 General

As identified in the IEPA approved RAL Assessment Work Plan (BBL, 2005), the RAL Assessment included the following steps:

- Property Location, Access, and Utility Clearance;
- Property Sampling Plan;
- Sample Collection;
- Sample Preparation and Equipment Decontamination;
- Field XRF Analysis – Composite Samples;
- Laboratory Analysis – Composite Samples;
- Field XRF Analysis – Discrete Samples; and
- Laboratory Analysis – Discrete Samples.

Each of the RAL Assessment steps is detailed below.

2.2 Property Location, Access, and Utility Clearance

The RAL Assessment off-site properties were identified based on previous soil data collected by IEPA and IDPH. In 1992, IDPH collected 65 surface soils samples from 65 off-site properties, and IEPA collected 20 soil samples from 20 off-site properties (Terra, 1996). The soil data that were collected by IDPH and IEPA in 1992 were evaluated and compared to RALs. The RALs for metals (except lead) are from the *Hazard Evaluation Handbook, a Guide to Removal Actions, Emergency Removal Guidelines* (United States Environmental Protection Agency (USEPA), 1997); the RAL for lead is provided in the *Superfund Lead-Contaminated Residential Sites Handbook* (USEPA, 2003). Based on the IEPA 1992 data, none of the off-site properties had metal levels that exceeded the RALs; however, the IDPH 1992 data indicated 17 off-site properties where levels of lead and /or cadmium exceeded the RALs. These off-site properties include six locations (D11, W02, W05, W06, W11, and W14) west of the FPSA, ten locations (S02, S11, S12, S13, S16, S18, S19, S21, D16, and D19) south of the FPSA, and one location (E06) east of the FPSA (Figure 2).

For the RAL Assessment, the off-site properties were identified in order of sampling as SS-01 through SS-17. The correlation between the IDPH location identification and the RAL Assessment location identification is provided below:

RAL Identification	IDPH Identification	RAL Identification	IDPH Identification	RAL Identification	IDPH Identification
SS-01	W-11	SS-07	W-02	SS-13	S-02
SS-02	S-11	SS-08	D-11	SS-14	W-14
SS-03	S-16	SS-09	S-13	SS-15	S-18
SS-04	E-06	SS-10	S-21	SS-16	S-12
SS-05	W-05	SS-11	D-16	SS-17	W-06
SS-06	D-19	SS-12	S-19		

Once the off-site properties were identified, IEPA and DePue Group representatives obtained property access verbally followed by signed agreements with the off-site property owners. As soon as verbal agreements for access were obtained, BBL requested utility clearance via the Illinois One-Call system known as the Joint Utility Locating Information for Excavators (JULIE) system. The JULIE system requires 2 working days notification prior to subsurface activities. In general, BBL began the sample collection efforts after the 2-day notification unless BBL verified that the applicable utilities had already marked out the property and, therefore, sampling could begin sooner. For certain off-site properties, BBL requested additional clearance by the Village of DePue for water and sewer lines. A summary of access and utility clearance for the 17 off-site properties is provided below:

RAL Identification	IDPH Identification	Access Agreement Date	Date and Time Utility Clearance Obtained	Sampling Date(s)
SS-01	W-11	5/27/05	5/30/05 – 10:45 am	5/31/05 – 6/1/05
SS-02	S-11	5/27/05	6/1/05 – 3:30 pm	6/1/05
SS-03	S-16	5/27/05	6/2/05 – 12:00 pm	6/2/05
SS-04	E-06	5/31/05	6/2/05 – 3:15 pm	6/2/05 – 6/3/05
SS-05	W-05	5/31/05	6/3/05 – 8:00 am	6/6/05
SS-06	D-19	5/31/05	6/3/05 – 8:00 am	6/6/05 – 6/7/05
SS-07	W-02	6/2/05	6/7/05 – 8:00 am	6/7/05
SS-08	D-11	6/2/05	6/7/05 – 8:15 am	6/8/05
SS-09	S-13	6/3/05	6/8/05 – 8:00 am	6/8/05 – 6/9/05
SS-10	S-21	6/3/05	6/8/05 – 8:00 am	6/9/05
SS-11	D-16	6/6/05	6/9/05 – 8:00 am	6/9/05
SS-12	S-19	6/8/05	6/10/05 – 9:15 am	6/10/05
SS-13	S-02	6/6/05	6/9/05 – 9:00 am	6/13/05
SS-14	W-14	6/9/05	6/10/05 – 10:45 am	6/13/05 – 6/14/05
SS-15	S-18	6/9/05	6/10/05 – 2:45 pm	6/14/05
SS-16	S-12	6/7/05	5/30/05 – 1:00 pm 6/15/05 – 11:30 am	6/15/05
SS-17	W-06	6/14/05	6/16/05 – 8:30 am	6/16/05

2.3 Off-Site Property Sampling Plan

Following receipt of the appropriate property access and utility clearances, BBL, DePue Group, IEPA, and/or Ecology & Environment (E&E) representatives reviewed each off-site property in the field. Subsequent to the field reviews, BBL proposed a site-specific sampling plan for each off-site property following the general guidelines set forth in the RAL Assessment Work Plan (BBL, 2005), including:

- Off-site properties less than 5,000 square feet: two five-point composite samples (i.e., a sample composed of subsamples from five sample locations) from the front yard and the back yard; and an additional five-point composite sample collected from the side yard if the size of the side yard is approximately one-third of the total yard area.
- Off-site properties with a total surface area greater than 5,000 square feet: four five-point composite samples from each of four quadrants of roughly equal surface area.

- Off-site properties over one acre in size: one five-point composite sample from each ¼-acre section.
- Off-site properties with a house: an additional drip zone composite sample (i.e., a sample composed of subsamples from four sample locations on each side of the house with roof sloping downward and/or from downspout-influenced locations).
- Off-site properties with a garden: an additional composite sample (i.e., a sample composed of subsamples from three to five locations) for gardens greater than 100 square feet and /or a discrete sample for gardens less than 100 square feet.

These composite sampling procedures follow guidance in the *Superfund Lead-Contaminated Residential Sites Handbook* (USEPA, 2003).

The proposed off-site property-specific sampling plans were discussed and modified during field consultations with IEPA and E&E. For example, four-point composites were obtained instead of five-point composites where open lawn space was limited (e.g., due to house placement, patios, garages, sheds, driveways). In addition to the USEPA guidance, BBL used the IDPH field sampling notes to place one of the sampling locations on each off-site property at or near the 1992 IDPH sampling location. These locations can only be considered approximate based on the IDPH-prepared sketches and measurements as well as changing conditions (e.g., building additions) performed since the IDPH sampling. The final sampling locations were then staked with numbered orange flags. Table 1 summarizes the sampling plans by off-site property; Appendix B provides a site plan showing sampling locations for each off-site property.

2.4 Sample Collection

After sample locations were finalized and approved by IEPA, BBL conducted three to four probings using a T-handle utility probe around the proposed sample location to provide an additional check for utilities and clearance. After this probing, BBL collected 2-inch sample cores from each flagged location at each off-site property using a manual Geoprobe slide hammer driven macrocore sampler with an acetate liner. The sampler was driven to 24 inches to ensure the collection of the following sample intervals: 0-1 inch, 1-6 inch, 6-12 inch, and 12-18 inch. Total sample recoveries ranged from 18 to 23 inches. One core per sample location provided sufficient sample volume. The acetate liners containing the sample cores were removed from the macrocore sampler, labeled, capped (with plastic and tape), and transported to a cooler in the field laboratory set up in the ExxonMobil building at the FPSA. Sample labels identified the operable unit (OU4), sample property (SS-01 through SS-17), and the sample locations (01 through 27). Sample identification numbering was modified in the field as documented in the field changes in Appendix A.

To supplement the 0-1 inch interval, a 6-inch by 6-inch square of sod was cut and removed and the upper 0-1 inch of soil beneath the grass/root zone was removed at each boring location with a stainless steel trowel. Initially, a 12-inch by 12-inch square area was used; however, the amount of soil generated by this larger area was not needed. At first, the supplemental 0-1 inch interval soils were placed into a stainless steel bowl/pan prior to transfer to the field laboratory. Later during sample collection, the supplemental 0-1 inch soil was placed in a labeled plastic bag and transported to a cooler in the field laboratory. Sample labels identified the operable

unit (OU4), sample property (SS-01 through SS-17), the sample locations (01 through 27), and the sample interval (0-1 inch).

Each sample location was recorded with a Garmin 12 Global Position System (GPS) surveying unit. In addition, each sample location was located in the field by measured distances to prominent property features. The sampling locations by off-site property using the GPS measurements and the field measurements are provided in Appendix B.

To restore the core and supplemental sampling areas, commercially obtained topsoil was placed in the coreholes and hand compacted. Displaced grass/root zone soils were placed on top of the coreholes and supplemental sampling areas to the extent possible. Disturbed soils were watered prior to leaving the properties. Photographs were obtained at each sampling location.

2.5 Sample Preparation and Equipment Decontamination

Prior to sample preparation, the sample cores from each off-site property were removed from the cooler and grouped according to off-site property sub-area for compositing (i.e., front yard, back yard, side yard, drip zone, and garden). Each group of cores was placed on a plastic-lined processing table, end caps were removed from each core, and the acetate liner cut open from each core. After the soil cores from a composite group were exposed, each soil core was measured, photographed, and described with respect to color, grain size, moisture content, and presence of debris/anthropogenic materials. Soils were generally similar throughout the 17 off-site properties and consisted of brown to grey silts and fine to medium sands. Occasionally, black soils and anthropogenic materials were observed; however, no sample intervals were predominantly filled. As such, soil intervals were not separated from fill materials. Appendix C provides the sample descriptions for each sample core location by interval. The plastic liner on the processing table was replaced after each group of cores was processed.

Initially, soil moisture contents were measured using field instruments (e.g., AEMC moisture content meter). The moisture content readings by these instruments appeared excessive for the relatively dry soil conditions. Accordingly, actual moisture contents were requested as a part of the laboratory analyses rather than rely on apparently inaccurate field measurements. Overall, laboratory moisture contents ranged from 2.9% to 18.5% for the composite samples and 6.2% to 24.9% for the discrete samples.

Following completion of the soil descriptions, the soil from each core was segregated into the following discrete sample depth intervals: 0-1 inch, 1-6 inch, 6-12 inch, and 12-18 inch. Each sample interval from each core in a given composite group was placed in a clean rectangular stainless steel or glass pan. Soil from the supplemental 0-1 inch sample interval was added into the appropriate pans with the discrete 0-1 inch intervals. Each discrete sample interval was homogenized by removing rocks, debris, twigs, roots, and grass from the pan and crushing soil clumps with a dedicated clean stainless steel spoon. After each discrete sample interval was homogenized, the soil was spread evenly along the bottom of the pan. For each discrete sample interval from each composite group, a stainless steel scoop of equal volume was used to collect representative samples from each interval for compositing. The equal sample volumes were placed into a separate container (i.e., stainless steel or glass pan) for

homogenization to prepare the composite samples. For each discrete individual sample interval and each composite sample interval, 2-ounce glass laboratory analytical jars were filled and retained in the on-site cooler if selected for laboratory analysis, and a plastic bag was filled and retained in the on-site cooler for field XRF analyses (all composites and selected discrete sample intervals). Sample labels for the discrete sample intervals identified the operable unit (OU4), sample property (SS-01 through SS-17), the sample locations (01 through 27), and the sample interval (0-1 inch, 1-6 inch, 6-12 inch, or 12-18-inch). Sample labels for the composite samples identified the operable unit (OU4), sample property (SS-01 through SS-17), composite number (COMP1 through COMP6), and the sample interval (0-1 inch, 1-6 inch, 6-12 inch, or 12-18-inch).

Sampling equipment in contact with soils was cleaned sequentially using a tap water rinse, Alconox/tap water scrub, tap water rinse, 10% nitric acid rinse, followed by a deionized water rinse. Cleaning occurred prior to the start of the sampling, in between property and sampling locations, and at the completion of the sampling. All cleaning was conducted in a bucket near the field vehicle (i.e. not on the properties) such that all cleaning fluids were contained within the bucket. The cleaning fluids were then transported to the field laboratory and placed in a 55-gallon holding drum. Periodically, the cleaning fluids in the 55-gallon holding drum were transferred to the Interim Water Treatment Plant for treatment.

2.6 Field XRF Analysis – Composite Samples

Prior to performing XRF analyses on the composite samples, site-specific method detection limits, sample run times, and sample containers for field XRF analysis were determined.

Average site-specific method detection limits (MDLs) were determined from seven replicate XRF analyses of the following standard reference materials (SRMs):

- Low standard (National Institute of Standards and Technology (NIST) Low 2709): arsenic, copper, iron, lead, manganese, nickel, and zinc
- Mid standard (NIST Mid 2711): cadmium
- High standard (NIST High 2710): mercury
- CLP standard (CLP D043540): barium, chromium, cobalt, selenium, and silver

The results of the MDL determination are provided in Appendix D and were used to qualify the XRF data.

Sample run times were determined by analyzing the CLP standard four times each at 60 seconds, 90 seconds, 120 seconds, 150 seconds, and 180 seconds. The best recoveries (i.e., the result value compared to the true value) were observed at 120 seconds, which was consistent with the XRF instrument manufacturer's representative's recommendation. As a result of this comparison, BBL ran all XRF samples at sample run times of 120 seconds. The sample run times are documented in the field clarifications provided in Appendix A and a summary is provided in Appendix D.

In the RAL Assessment Work Plan, polyethylene sample cups were specified as the sample containers for XRF analysis. BBL requested a field change to use plastic bags instead of the sample cups. The CLP standard was run seven times in the sample cup and seven times in a plastic bag; the percent differences between the two methods were less than five percent as documented in the field change requests in Appendix A.

Each composite sample was analyzed in the field laboratory using an Innov-X Systems XRF spectrometer, Model XT-260S in accordance with Test Methods for Evaluating Solid Waste, SW-846 Method 6200. Although only certain metals (arsenic, barium, cadmium, iron, lead, and zinc) have been identified as preliminary constituents of potential concern (COPC) for the site, as a conservative approach each of the composite soil samples were analyzed for arsenic, barium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, selenium, silver, and zinc, hereinafter referred to as the XRF analytes. Other Target Analyte List (TAL) metals such as antimony, aluminum, beryllium, magnesium, thallium, and vanadium were not analyzed because XRF technology does not work effectively for these metals, and they are not preliminary COPCs.

Composite samples in plastic bags were placed under the x-ray window for 120 seconds, and the results of the XRF analytes were recorded electronically on a pocket personal computer (PPC). At the end of each day the PPC files were transferred to the field computer. Field data reports consisting of the sample results and comparisons to trigger levels (i.e., 1/5, 1/4, and/or 1/3 of the RALs) were printed at the end of each day and reviewed in the field.

A summary of the field XRF analyses of the composite samples completed is provided below:

Date	Composite Samples Analyzed
6/7/05	SS-01, COMPs 1 to 5, all intervals SS-02, COMPs 1 to 5, all intervals SS-03, COMPs 1 to 4, all intervals
6/8/05	SS-04, COMPs 1 and 2, all intervals
6/9/05	SS-04, COMPs 3 to 6, all intervals SS-05, COMPs 1 to 4, all intervals
6/10/05	SS-06, COMPs 1 to 5, all intervals SS-07, COMPs 1 to 5, all intervals
6/14/05	SS-08, COMPs 1 to 4, all intervals SS-09, COMPs 1 to 5, all intervals SS-10, COMPs 1 to 3, all intervals SS-10-09 and SS-10-10, all intervals (discrete garden samples)
6/15/05	SS-11, COMPs 1 to 3, all intervals SS-12, COMPs 1 to 3, all intervals SS-13, COMPs 1 to 3, all intervals
6/16/05	SS-14, COMPs 1 to 4, all intervals SS-14-16 and SS-14-17, all intervals (discrete garden samples) SS-15, COMPs 1 to 4, all intervals SS-16, COMPs 1 to 5, all intervals SS-17, COMPs 1 and 2, all intervals

As a part of the field XRF analyses, quality assurance/quality control procedures (QA/QC) were also performed and included the following:

- Energy calibration check at least twice a day at the beginning and end of the XRF analyzer usage.
- Methods blank check using pure silicon dioxide every 20 samples.
- Equipment blank check using silica sand prepared using the same procedures as the composite samples every 20 samples.
- Standard check using the CLP standard every 20 samples.
- Precision checks (seven replicates) using previously analyzed samples once a day at the beginning of the XRF analyzer usage.

The QA/QC results are provided by day of XRF analysis and were used to review and qualify the XRF data as set forth in Appendix D.

2.7 Laboratory Analysis – Composite Samples

The daily field data reports were reviewed to select composite samples for laboratory analysis. Sample selection was based on comparison of XRF results to decision criteria as described below:

- Lead: If the XRF composite sample results are greater than the lead RAL, then submit for laboratory analysis of lead.
- Arsenic: If the XRF composite sample results or the detection limits are greater than the appropriate fraction of the arsenic RAL (i.e., 1/5, 1/4, or 1/3 depending on the number of subsamples in the composite), then submit for laboratory analysis of arsenic (this applies only to the first five off-site properties as documented in the field change requests in Appendix A).
- Metals other than arsenic/lead: If the XRF composite samples results are greater than the appropriate fraction of the applicable metal RALs (i.e. 1/5, 1/4, or 1/3 depending on the number of subsamples in the composite), then submit for laboratory analysis of the applicable metals.

In addition, for each off-site property, 20 percent of the composite samples selected for laboratory analysis as described above were submitted for analysis of the entire TAL. All samples were also analyzed for pH and moisture content. The sample selection rationale for submittal of the composite samples for laboratory analysis is provided in the field clarifications in Appendix A. Additional sample selection criteria included: representation of a range of constituent concentrations based on the XRF results, consideration of QA/QC results, and consideration of the sample depths and spatial location. Sample selection summaries were provided to IEPA and E&E in the field. A summary by off-site property of samples submitted for laboratory analysis is provided below:

Off-site Property	Composite Total	Composite Samples Submitted for TAL Laboratory Analyses	Composite Samples Submitted for Specific Metals Laboratory Analyses
SS-01	20	4	10 – arsenic
SS-02	20	4	10 – arsenic
SS-03	16	3	10 – arsenic 1 – cadmium
SS-04	24	5	9 – arsenic
SS-05	16	3	5 – arsenic
SS-06	20	5	NA
SS-07	20	4	NA
SS-08	16	4	NA
SS-09	20	5	NA
SS-10	12	2	NA
SS-11	12	3	NA
SS-12	12	3	NA
SS-13	12	3	NA
SS-14	16	3	NA
SS-15	16	4	NA
SS-16	20	5	NA
SS-17	8	2	NA

Chain of custody forms and sample labels were generated electronically for the samples selected for laboratory analysis. Selected samples were removed from the field cooler, labeled, cushioned, and placed in a cooler with ice for transport to the laboratory. Coolers were transported via overnight delivery to Lancaster Laboratories in Lancaster, Pennsylvania (Lancaster).

Lancaster used the following analytical methods:

- TAL metals (except mercury): Test Methods for Evaluating Solid Waste SW-846, Method 3050B (digestion) and Method 6010B (analysis).
- Mercury: Test Methods for Evaluating Solid Waste SW-846, Method 7471A (digestion and analysis).
- pH: Test Methods for Evaluating Solid Waste SW-846, Method 9045C.
- Moisture content: Methods for Chemical Analysis of Water and Wastes USEPA 600/4-79-020, Method 160.3.

The laboratory analytical data were received as electronic data deliverables (EDDs), which were followed by complete Contract Laboratory Program (CLP)-type data packages approximately 4 to 6 weeks after sample delivery. A summary of the XRF data and the analytical laboratory data for the composite samples is provided in Table 2.

In addition to the sample analyses, the following field QA/QC samples were also submitted to Lancaster:

- Rinse blanks prepared by pouring laboratory-supplied analyte-free water over the decontaminated sampling equipment once a day.
- Duplicates every 20 samples.
- Matrix spikes/matrix spike duplicates every 20 samples.

Laboratory QA/QC procedures included initial and continuing calibration verifications, low level check standards, initial calibration blanks, continuing calibration blanks, preparation blanks, ICP interference check samples, post digest spike sample recoveries, laboratory control samples, and ICP serial dilutions. Field and laboratory QA/QC sample results are discussed and validated laboratory analytical data are provided in the laboratory data validation reports (Appendix E).

2.8 Field XRF Analysis – Discrete Samples

The daily field data reports were reviewed to select discrete samples for XRF analysis. Sample selection was based on the following guidelines:

- Lead: Because the USEPA (2003) lead guidance recommends use of composite samples, discrete samples were not evaluated.
- Arsenic: If the XRF and/or laboratory composite sample results or the detection limits are greater than the appropriate fraction of the arsenic RAL (i.e., 1/5, 1/4, or 1/3 depending on the number of discrete samples used to make up the composite), then analyze the discrete samples of that composite for arsenic by field XRF.
- Metals other than arsenic/lead: If the XRF and/or laboratory composite sample results are greater than the appropriate fraction of the RAL (i.e., 1/5, 1/4, or 1/3 depending on the number of samples in the composite), then analyze the discrete samples of that composite for the RAL-exceeding metals by field XRF.

Sample selection summaries were provided to IEPA and E&E in the field. An off-site property-specific summary of the discrete samples analyzed by field XRF is provided below:

Date	Off-site Property	Number of Discrete Samples Analyzed for Specific Metals by XRF
6/20/05	SS-01	63 – arsenic
6/23/05		5 – cadmium
6/20/05	SS-02	60 – arsenic
6/23/05		4 – iron
6/21/05	SS-03	63 – arsenic
6/23/05		10 – cadmium
6/21/05	SS-04	58 – arsenic
6/21/05	SS-05	40 – arsenic
6/21/05	SS-06	66 – arsenic
6/23/05		5 – cadmium
6/21/05	SS-07	53 – arsenic
6/22/05	SS-08	51 – arsenic

Date	Off-site Property	Number of Discrete Samples Analyzed for Specific Metals by XRF
6/23/05		15 – cadmium
6/22/05	SS-09	57 – arsenic
6/22/05	SS-10	28 – arsenic
6/22/05	SS-11	52 – arsenic
6/23/05		4 – cadmium
6/22/05	SS-12	28 – arsenic
6/23/05		5 – cadmium
6/22/05	SS-13	48 – arsenic
6/23/05		10 – mercury
6/23/05	SS-14	75 – arsenic
6/23/05		5 – cadmium
6/23/05	SS-15	53 – arsenic
6/23/05		5 – cadmium
6/23/05	SS-16	78 – arsenic
6/23/05		5 – mercury
6/23/05	SS-17	40 – arsenic

As discussed in Section 2.6, QA/QC procedures were also performed during the XRF analyses. The QA/QC results are provided by day of XRF analysis and were used to review and qualify the XRF data as set forth in Appendix D.

2.9 Laboratory Analysis – Discrete Samples

The daily field data reports were reviewed to select discrete samples for laboratory analysis. Sample selection was based on the following guidelines:

- Lead: No discrete samples were evaluated for reasons discussed previously.
- Arsenic: If the XRF discrete sample results are greater than the arsenic RAL, then submit for laboratory analysis of arsenic.
- Metals other than arsenic/lead: If the XRF discrete sample results are greater than RALs, then submit for laboratory analysis of the RAL-exceeding metals.

In addition, 20 percent of the discrete samples submitted for laboratory analysis were analyzed for the full TAL. All samples were also analyzed for pH and moisture content. The sample selection rationale for submittal of the discrete samples for laboratory analysis is provided in the field clarifications in Appendix A.

An off-site property-specific summary of discrete samples submitted for laboratory analysis is provided below:

Off-site Property	Discrete Total	Discrete Samples Submitted for TAL Laboratory Analyses	Discrete Samples Submitted for Specific Metals Laboratory Analyses
SS-01	3	1	2 – arsenic
SS-02	NA	NA	NA
SS-03	2	0	2 – arsenic
SS-04	NA	NA	NA
SS-05*	5	4	1 – arsenic
SS-06	1	0	1 – arsenic
SS-07	NA	NA	NA
SS-08	1	0	1 – arsenic
SS-09	3	1	2 – arsenic
SS-10	1	1	NA
SS-11	3	0	3 – arsenic
SS-12	NA	NA	NA
SS-13	1	1	NA
SS-14	5	2	3 – arsenic
SS-15	2	0	2 – arsenic
SS-16	5	1	3 – arsenic 1 – mercury
SS-17	1	0	1 – arsenic

Note:

NA = not applicable

* Additional discrete samples were analyzed in the laboratory from SS-05-15 because XRF analyses were inadvertently not completed for this location.

Chain of custody forms and sample labels were generated electronically for the samples selected for laboratory analysis. Selected samples were removed from the field cooler, labeled, cushioned, and placed in a cooler with ice for transport to the laboratory. Coolers were transported via overnight delivery to Lancaster.

Laboratory analytical methods, field QA/QC samples, and laboratory QA/QC procedures are discussed in Section 2.7. A summary of the XRF data and the analytical laboratory data for the discrete samples is provided in Table 3. Field and laboratory QA/QC sample results are discussed and validated laboratory analytical data are provided in the data validation reports (Appendix E).

3 RAL Assessment Results

The section evaluates the results of the RAL Assessment with respect to the Assessment objectives. As set forth in Section 1.2, the specific objectives of the RAL Assessment include:

- Identify and sample locations where previous IDPH data suggests RALs may be exceeded;
- Conduct a correlation study to determine the feasibility of using XRF for measuring metals concentrations for comparison to the RALs and for future investigative activities; and
- Delineate the extent of RAL exceedances (if applicable).

The RAL Assessment results to meet these specific objectives are provided below.

3.1 Comparison with IDPH Data

The 17 off-site properties were selected by IEPA for RAL sampling and analysis based on the results of previous sampling by IDPH. For all 17 of these off-site properties, access was obtained, soil sampling was performed, and samples were analyzed using field XRF and analytical laboratory methods. Previous IDPH data suggested that concentrations of cadmium and lead were above RALs at the 17 off-site properties. During the RAL Assessment, as discussed in Section 2.3, attempts were made to include the previous IDPH sampling location as one of the 8 to 24 sampling locations on each off-site property to the extent feasible.

In contrast to the previous IDPH results, the 2005 RAL sampling identified no RAL exceedances for cadmium. The 2005 RAL sampling did identify RAL exceedances for lead, but these exceedances occurred only in drip zone samples. Per the *Superfund Lead-Contaminated Residential Sites Handbook* (USEPA, 2003), observation of lead solely in the drip zone samples indicates lead-containing exterior paint as a potential source of lead. In addition, the 2005 RAL sampling identified RAL exceedances for arsenic; however, arsenic was not included in the IDPH sampling program. The 2005 arsenic observations appear to be isolated and may be related to background or other sources not related to the DePue Site (e.g., arsenical herbicides and pesticides potentially associated with historic agricultural land use). Table 4 presents a data summary of samples exceeding RALs. Lead and arsenic RAL exceedances are discussed in more detail in Section 3.4.

In summary, the IDPH data were not corroborated during the RAL Assessment. A comparative summary of the IDPH and RAL Assessment data are provided below.

IDPH Location Identification	Metals Above RALs in IDPH Samples	RAL Assessment Identification	Metals Above RALs in 2005 RAL Assessment Samples
W-11	Lead, cadmium	SS-01	Arsenic
S-11	Cadmium	SS-02	None
S-16	Lead	SS-03	Arsenic
E-06	Cadmium	SS-04	None

IDPH Location Identification	Metals Above RALs In IDPH Samples	RAL Assessment Identification	Metals Above RALs In 2005 RAL Assessment Samples
W-05	Cadmium	SS-05	Arsenic
D-19	Lead	SS-06	None
W-02	Cadmium	SS-07	None
D-11	Lead	SS-08	None
S-13	Cadmium	SS-09	None
S-21	Lead	SS-10	None
D-16	Lead	SS-11	Arsenic
S-19	Cadmium	SS-12	None
S-02	Cadmium	SS-13	Lead (Drip zone)
W-14	Lead	SS-14	Lead (Drip zone)
S-18	Cadmium	SS-15	Lead (Drip zone)
S-12	Cadmium	SS-16	Lead (Drip zone)
W-06	Lead	SS-17	Arsenic

In only one location, OU4-SS-17-10, was a 2005 RAL exceedance found near the 1992 IDPH sampling location (as determined to the extent possible based on the IDPH-prepared sketches and measurements). However, the 1992 IDPH sample was a surficial sample with a lead concentration above the RAL while the 2005 sample was a 12 -18 inch interval sample with an arsenic concentration above the RAL.

A comparison of the cadmium and lead concentrations between the 1992 IDPH data and the 2005 RAL data is provided below:

Location	1992 IDPH Result (ppm)	2005 XRF Result * (ppm)	2005 Lab Result (ppm)	RAL Sample Used for Comparison
SS-01	Lead = 2059 Cadmium = 392	Lead = 646 Cadmium = 65	Lead = 612 Cadmium = 35	COMP1(0-1)
SS-02	Cadmium = 630	Cadmium = 34	NA	COMP4 (0-1)
SS-03	Lead = 1315	Lead = 285	NA	COMP2 (0-1)
SS-04	Cadmium = 420	Cadmium = 39	NA	COMP1 (0-1)
SS-05	Cadmium = 1506	Cadmium = 35	NA	COMP3(0-1)
SS-06	Lead = 7355	Lead = 174	NA	COMP4(0-1)
SS-07	Cadmium = 473	Cadmium = 67	NA	COMP3(0-1)
SS-08	Lead = 1521	Lead = 338	Lead = 285	COMP2(0-1)
SS-09	Cadmium = 1340	Cadmium = 51	NA	COMP3(0-1)
SS-10	Lead = 1661	Lead = 560	NA	COMP2(0-1)
SS-11	Lead = 1695	Lead = 365	Lead = 346	COMP2(0-1)
SS-12	Cadmium = 808	Cadmium = 37	NA	COMP2(0-1)
SS-13	Cadmium = 9100	Cadmium = 47	NA	COMP2(0-1)
SS-14	Lead = 1354	Lead = 574	Lead = 434	COMP3(0-1)
SS-15	Cadmium = 520	Cadmium = 83	Cadmium = 53	COMP2(0-1)
SS-16	Cadmium = 8000	Cadmium = 40	NA	COMP4(0-1)
SS-17	Lead = 1250	Lead = 296	NA	COMP2(0-1)

* Data qualifiers not provided. Values rounded to the nearest whole number.

3.2 XRF Data Usability

Another objective of the RAL assessment sampling was to evaluate the usability of XRF analyses for measuring RAL exceedances and for future investigative activities. Comparison of the XRF and laboratory analytical data was conducted three ways: precision evaluation, linear regression analyses, and false negative rate calculations. Data correlation criteria presented in the table below are provided in the USEPA document “*Environmental Technology Verification Report EPA/600/R-97/150*”.

Data Correlation Between Methods SW-846 6200 and SW-846 6010B/7471A

Data Quality Level	Acceptable Data Correlation
Screening Data (Qualitative)	R^2 = less than 0.70. The precision is greater than 20 percent. The data must have less than a 10 percent false negative rate.
Screening Data with Definitive Confirmation (Quantitative)	R^2 = 0.70 to 1.0. The precision must be less than 20 percent, but the inferential statistics indicate that the data sets are statistically different.
Data Quality Level	Acceptable Data Correlation
Definitive Data (Definitive)	R^2 = 0.85 to 1.0. The precision must be less than or equal to 10 percent and the inferential statistics must indicate that the two data sets are statistically similar.

Note:

R^2 = Correlation coefficient

To determine the precision of the XRF method, one sample per day was analyzed seven times in replicate. The precision of the XRF method was then evaluated using the relative standard deviation (RSD) of the sample arithmetic mean. The sample replicate results and calculations for determining the RSDs are provided in Appendix D and a summary of RSDs is provided in Table 5. In total, one CLP standard and seven composite samples were analyzed for the XRF analytes, and three discrete samples were analyzed for arsenic to evaluate the precision of the XRF method. For instances when a replicate was analyzed as non-detect, the full detection limit was used in the precision evaluation. The RSD is limited in application when analytes are present at levels near the sample detection limit with some replicate results reported as non-detect.

The results of the precision evaluation of the XRF method are provided in Table 5 and the calculation summaries are provided in Appendix D. The average RSD for the XRF analytes in the composite samples ranged from 1.94 (silver) to 19.14 (arsenic) percent. The results of chromium, cobalt, nickel, selenium, and silver are biased low due to the high percentage of non-detects observed in the composite replicate analyses for these metals. Mercury results exhibit the same bias, except for one composite sample (OU4-SS-11-COMP3 (12-18)) where concentrations were detected at levels higher than the sample detection limit. Based upon this bias, the RSDs for chromium, cobalt, nickel, mercury, selenium, and silver were not used any further in this data usability evaluation. The average and range of RSDs for copper, iron, lead, and zinc meet the requirements for definitive data. The remaining XRF analytes (arsenic,

barium, cadmium, and manganese), have average RSDs below 20 percent, which meet the requirement for quantitative screening data.

The linear regression analysis of the paired XRF and laboratory data was performed using a standard linear least squares method. As specified in USEPA Method 6200 (USEPA, 1998), the data were log-transformed to standardize variance which is proportional to the magnitude of measurement. The paired log-transformed data for each metal are plotted on a linear scale and a linear regression line is fitted to the data (Appendix F). The correlation coefficient (R^2) is a measurement of the proportion of observed variance in y (XRF) that can be explained by x (laboratory). A summary of the linear regression analysis is presented in Tables 6a and Table 6b. The R^2 results for chromium, cobalt, and nickel are based on a limited sample size (i.e. less than 10 matched pairs) due to the high percentage of non-detects observed in the paired XRF and laboratory analyses for these metals. Further, R^2 values could not be calculated for selenium and silver because there are no matched pairs with both XRF and laboratory values above the detection limits. Based upon the limited sample sizes, the R^2 results for chromium, cobalt, nickel, selenium, and silver were not used any further in this data usability evaluation.

The dry weight results of the linear regression analysis (Table 6a) indicate: barium and zinc results are correlated at R^2 values at or greater than 0.85 and meet the requirements for definitive data. Lead, manganese, and mercury results are correlated at R^2 values greater than 0.7 and meet the requirements for quantitative screening data. Arsenic, cadmium, and copper, R^2 values are just below the 0.7 R^2 requirement at 0.60, 0.60, and 0.68, respectively. If rounded upward, the copper R^2 value would meet the 0.7 R^2 requirement for quantitative screening data. The iron R^2 value is further below the 0.7 R^2 requirement at 0.52.

The wet weight results of the linear regression analysis (Table 6b) indicate: barium and zinc results are correlated at R^2 values at or greater than 0.85 and meet the requirements for definitive data. The lead, results correlated at R^2 values greater than 0.7 and meet the requirements for quantitative screening data. Arsenic, copper, manganese, and mercury R^2 values are just below the 0.7 R^2 requirement at 0.61, 0.65, 0.65, and 0.69, respectively. If rounded upward, the copper, manganese, and mercury R^2 values would meet the 0.7 R^2 requirement for quantitative screening data. The cadmium and iron R^2 values are further below the 0.7 R^2 requirement at 0.58 and 0.47.

For the two metals with R^2 values greater than 0.85 (barium and zinc), the paired XRF and laboratory data were further tested using the Wilcoxon signed rank test and the paired t-test to determine if the data sets are statistically similar (Table 7). The results (both wet and dry weight) indicate that barium and zinc are not statistically similar; and therefore, do not meet the requirements for definitive data.

The rate of false negatives must be considered in evaluating whether XRF results can be considered qualitative (false negative rates must be less than 10% for qualitative data). For purposes of this discussion, a false negative is defined as a XRF result which under-predicts the corresponding laboratory analysis result. The number of false negatives observed for each paired (XRF and laboratory) analyses divided by the total number of paired samples gives the false negative rate. The false negative rates for chromium, cobalt, and nickel are based on a

limited sample size (i.e. less than 10 matched pairs) due to the high percentage of non-detects observed in the paired XRF and laboratory analyses for these metals. False negative rates could not be calculated for selenium and silver because there are no matched pairs with both XRF and laboratory values above the detection limits. Based upon the limited sample sizes, the false negative rates for chromium, cobalt, nickel, selenium, and silver were not used any further in this data usability evaluation. False negative rates less than 10% were observed for arsenic, cadmium, iron, mercury, and zinc (Table 8). The false negative rate for lead was slightly above 10% at 14 %. False negative rates greater than 10% were observed for barium, copper, and manganese.

Based on the collective Environmental Technology Verification (ETV) (USEPA, 1998) criteria (R^2 values, inferential statistics which are applicable when R^2 values are greater than 0.85, RSDs, and false negative rates), the XRF data for barium and zinc are considered quantitative screening data. In addition, the XRF data for lead, manganese, and mercury are quantitative data. Arsenic, cadmium, and copper XRF data are just below qualifying as quantitative data due to R^2 values ranging from 0.58 and 0.68. Therefore, XRF data for these metals are considered qualitative data except for copper which has a false negative rate greater than 10 percent. However, if the R^2 values for copper are rounded, then the copper XRF data could be considered as quantitative data. The remaining metal XRF results are qualitative data or the data usability could not be determined from this assessment. With all data comparisons viewed collectively, the XRF method operated most effectively for barium, lead, and zinc, followed by manganese, mercury, arsenic, cadmium, and copper. However, the applicability of the XRF to various aspects of the project will be reviewed as additional data are collected. A summary of the data usability is provided below.

Summary of Data Usability based on statistical analysis of XRF data

Analyte	%RSD	R^2 (dry/wet)	Inferential Statistics ^a	Percent False Negatives	Data Usability (dry/wet)
Arsenic	19.1	0.60/0.61	Not applicable	4	Qualitative/Qualitative
Barium	10.7	0.87/0.85	Different ($p < 0.001$)	90	Quantitative/Quantitative
Cadmium	14.9	0.60/0.58	Not applicable	0	Qualitative/Qualitative
Copper	9.7	0.68/0.65	Not applicable	56	None; Quantitative (if R^2 rounded)/ None; Quantitative (if R^2 rounded)
Iron	2.5	0.52/0.47	Not Evaluated	4	Qualitative
Lead	5.9	0.81/0.82	Not applicable	14	Quantitative/Quantitative
Manganese	10.2	0.70/0.65	Not Evaluated	50	Quantitative/Qualitative (if R^2 rounded)
Mercury	5.0	0.71/0.69	Not Evaluated	0	Quantitative/Qualitative (if R^2 rounded)
Zinc	4.3	0.94/0.94	Different ($p < 0.001$)	3	Quantitative/Quantitative

^a Hypothesis Test - p -value ≤ 0.05 = different; p -value > 0.05 = similar

^b Two sample paired t-test (parametric)

3.3 Supplemental Statistical Data Analyses

Based upon the data usability results for arsenic, cadmium, and lead, the IEPA requested supplemental soil sampling and laboratory analysis for select samples where the XRF results were lower than but near their respective RALs. The approach agreed to by the IEPA and the DePue Group to determine what specific XRF levels would require laboratory confirmation analysis involved calculating an XRF screening level from the linear regression analyses of the XRF data (wet weight) and the laboratory data. The XRF screening level is the concentration estimated by XRF for which the corresponding concentrations determined by laboratory analysis will not exceed the RAL with at least 95% confidence. In this approach, the 95% upper prediction interval on the log-log linear regression was used to establish the XRF screening levels. As set forth in the supplemental statistical analysis (Appendix D), the XRF screening levels for arsenic (40.9), cadmium (194 mg/kg), and lead (693 mg/kg) were calculated. Comparing the screening values to the XRF data set not previously confirmed by laboratory analysis, it was determined that six additional samples would require laboratory confirmation in order for IEPA to state with at least 95% confidence that these six specific locations did not exceed the RALs for these analytes. As agreed to in the April 13, 2010 IEPA approval letter, the following sample locations will be re-sampled and analyzed for select parameters as indicated in the table below during the Off-site Soils RI:

Location ID	Sample ID	Analyte	Residential RAL	Analyte/XRF Result (wet wgt. ppm) (May/June 2005)
W-11	OU4-SS-01-09 (1-6)	Arsenic	43	42.8
S-11	OU4-SS-02-03(1-6)	Arsenic	43	42.6
S-16	OU4-SS-03-05 (0-1)	Cadmium	390	228
D-11	OU4-SS-08-12 (1-6)	Cadmium	390	235
D-11	OU4-SS-08-14 (0-1)	Cadmium	390	202
W-14	OU4-SS-14-COMP4 (1-6)	Lead	1,200	1,080

As discussed with IEPA, one drip zone composite sample (OU4-SS-14-COMP4 (1-6)) exceeded the lead XRF screening value; however, this sample was collected in the interval below sample OU4-SS-14-COMP4 (0-1) which was analyzed by both XRF and laboratory methods and was confirmed to exceed the RAL. As such, resampling the composite samples beneath this sample was not necessary. Lead exceedances are discussed further in Section 3.4.

3.4 Extent of RAL Exceedances

As discussed in Section 3.1, there were four off-site properties where lead concentrations exceeded the lead RAL of 1,200 mg/kg and five off-site properties where arsenic concentrations exceeded the arsenic RAL of 43 mg/kg.

The extent of the lead and arsenic RAL exceedances is described below:

Lead

The following drip zone composite samples from off-site properties SS-13 through SS-16 contained lead concentrations in laboratory analytical samples above the lead RAL of 1,200 mg/kg as follows:

Sample Identification	Composite Lead Concentration (mg/kg)
OU4-SS-13-COMP3(0-1)	1,890
OU4-SS-14-COMP4(0-1)	1,670
OU4-SS-15-COMP4(0-1)	1,350
OU4-SS-16-COMP5(0-1)	2,420

Off-site property SS-13 contains a one-story wood frame house constructed in 1856 with vinyl siding. Sample OU4-SS-13-COMP3 (0-1) represents a composite of drip zone samples that were obtained near three down spouts and in the drip zone at the back of the house near a wood porch (Figure 3).

Off-site property SS-14 contains a two-story wood frame house constructed in 1906 with aluminum siding. Sample OU4-SS-14-COMP4 (0-1) represents a composite of drip zone samples that were obtained near three down spouts and in the drip zone at the south side of the house.

Off-site property SS-15 contains a two-story painted wood-frame house (construction date not available) with shingle siding (Figure 4). Sample OU4-SS-15-COMP4 (0-1) represents a composite of drip zone samples that were obtained in the drip zones in the front and sides of the house and possibly near former downspout locations (Figure 5). Visibly peeling paint was noted on the foundation and wood trim.

Off-site property SS-16 contains a two-story painted wood-frame house constructed in 1866 with wood siding. Sample OU4-SS-16-COMP5 (0-1) represents drip zone samples that were obtained near the front (near a wood porch) and west sides of the house (Figure 6). Visibly peeling paint was noted on the front wood porch.

The median year of construction for the houses in DePue is 1939 (IDPH/ATSDR, 1999). As such, most houses in the Village of DePue, including those at off-site properties SS-13 through SS-16, were constructed prior to 1978 when lead-based paints were potentially used in the interior and exterior of these houses (USEPA). Although the houses at two of these off-site properties were subsequently re-sided with vinyl and aluminum siding, visibly peeling paint was observed on the houses of the other two off-site properties. These observations are consistent with IDPH's observations of old paint that potentially contributed to the one elevated blood lead level of a DePue child. The exterior of the child's home had been scraped and painted, and visible paint chips were evident around the foundation of the home (IDPH/ATSDR, 1999). The *Superfund Lead-Contaminated Residential Sites Handbook* (USEPA, 2003) indicates that if the only portion of the yard that exceeds the RAL is the drip zone, then the likely source is lead-based paint. Further evaluation of lead-based paint issues will be conducted in conjunction with the IEPA and the appropriate health agencies.

Arsenic

The following discrete samples from off-site properties SS-01, SS-03, SS-05, SS-11, and SS-17 contained arsenic concentrations in laboratory analytical samples above the arsenic RAL of 43 mg/kg:

Sample Identification	Location	Discrete Arsenic Concentration (mg/kg)
OU4-SS-01-11(6-12)	Backyard	50.8
OU4-SS-03-13(12-18)	Backyard	43.3
OU4-SS-05-09(1-6) and OU4-SS-05-09(6-12)	Backyard	111 and 55.7
OU4-SS-11-12(12-18)	Drip zone/backyard	43.7
OU4-SS-17-10(12-18)	Backyard	78.5

Sample OU4-SS-01-11(6-12) from off-site property SS-01 was obtained in the backyard between the house and the garage (Figure 7). This sample was described as a brown fine to medium sand with some silt and trace roots, grass, and gravel. Railroad ties are present around the garage and potential pest/vegetation control substance was noted near the house foundation. The arsenic concentrations analyzed by XRF at the same location (i.e., OU4-SS-01-11) were less than the RAL in the 0- to 1-inch interval, in the 1- to 6-inch interval, in the 12- to 18-inch interval. Sampling locations OU4-SS-01-7, OU4-SS-01-12, OU4-SS-01-13, and OU4-SS-01-16 surround sample location OU4-SS-01-11. At these surrounding locations, arsenic concentrations analyzed by XRF in 14 samples were all less than the arsenic RAL except for the 12- to 18-inch interval from sample OU4-SS-01-16. This sample (i.e., OU4-SS-01-16 (12-18)) was submitted for laboratory analysis, and the laboratory based arsenic value was 40.4 mg/kg and 35 mg/kg in the duplicate sample. Overall, 63 discrete samples were analyzed for arsenic via XRF at off-site property SS-01. Only 3 of the 63 discrete samples contained arsenic above the RAL; all three of these samples were submitted for laboratory analysis. However, as described above only one sample was confirmed to exceed the RAL. In conclusion, the occurrence of arsenic above the RAL is isolated to one location at a depth of 6 to 12 inches. No further assessment to define the extent of arsenic above the RAL at or near this off-site property is required.

Sample OU4-SS-03-13(12-18) from off-site property SS-03 was obtained along the fence adjacent to the alley (Figure 8). This sample was described as a dark brown silt and fine sand with trace slag and fine gravel. The arsenic concentrations analyzed by XRF at the same location (i.e., OU4-SS-03-13) were less than the RAL in the 0- to 1-inch interval, in the 1- to 6-inch interval, and in the 6- to 12-inch interval. Sampling locations OU4-SS-03-11, OU4-SS-03-12, and OU4-SS-03-14 surround sample location OU4-SS-03-13, except to the north adjacent to the alley. At these surrounding locations, arsenic concentrations analyzed via XRF in 12 samples were less than the arsenic RAL. Overall, 63 discrete samples were analyzed for arsenic via XRF at off-site property SS-03. Only 2 of the 63 discrete samples contained arsenic above the RAL; these samples were submitted for laboratory analysis. However, as described above, only one sample was confirmed to exceed the RAL. In conclusion, the occurrence of arsenic above the RAL is isolated to one location at a depth from 12 to 18 inches. A focused assessment to define the extent of arsenic above the RAL between this off-site property and the alley behind this property is discussed in Section 4.

Samples SS-05-09(1-6) and OU4-SS-05-09(6-12) from off-site property SS-05 were obtained in the backyard near the side entrance to the house (Figure 9). The sample from the 1 to 6 inch interval was described as a dark brown/black fine sand, organics, and woody debris. The

sample from the 6 to 12 inch interval was described as a dark brown fine sand with some gravel and trace roots. The arsenic concentrations analyzed via XRF at the same location (i.e., OU4-SS-05-09) were less than the RAL in the 0- to 1-inch interval. Sampling locations OU4-SS-05-07, OU4-SS-05-08, OU4-SS-05-11, and OU4-SS-05-13 surround sample location OU4-SS-05-09. At these surrounding locations, arsenic concentrations analyzed via XRF in 10 samples were less than the arsenic RAL. Overall, 40 discrete samples were analyzed for arsenic via XRF at off-site property SS-05. Only 2 of the 40 discrete samples contained arsenic above the RAL, and both samples were confirmed to exceed the RAL. In conclusion, the occurrence of arsenic above the RAL is isolated to one location. No further assessment to define the extent of arsenic above the RAL at or near this off-site property is required.

Sample OU4-SS-11-12(12-18) from off-site property SS-11 was obtained along the western side of the house adjacent to the alley (Figure 10). This sample was described as a dark brown silt with little fine sand and trace roots and brick. The arsenic concentrations analyzed via XRF at the same location (i.e., OU4-SS-11-12) were less than the RAL in the 0- to 1-inch interval, in the 1- to 6-inch interval, and in the 6- to 12-inch interval. Sampling locations OU4-SS-11-01, OU4-SS-11-06, and OU4-SS-11-07 surround sample location OU4-SS-11-12, except to the west adjacent to the alley. At these surrounding locations, arsenic concentrations analyzed via XRF in 12 samples were less than the arsenic RAL except for the 12 to 18-inch interval from sample OU4-SS-11-01. This sample was submitted for laboratory analysis, and the laboratory based arsenic value was 17 mg/kg. Overall, 52 discrete samples were analyzed for arsenic via XRF at off-site property SS-11, and only 2 of the 52 discrete samples contained arsenic above the RAL. These two samples were submitted for laboratory analysis, and only one sample was confirmed to exceed the RAL. In conclusion, the occurrence of arsenic above the RAL is isolated to one location at a depth from 12 to 18 inches. A focused assessment to define the extent of arsenic above the RAL between this off-site property and the alley behind this property is discussed in Section 4.

Sample OU4-SS-17-10(12-18) from off-site property SS-17 was obtained along the western side of the property (a vacant lot) adjacent to the alley (Figure 11). This sample was described as a brown/black silt with some fine sand and trace black fines and fine gravel. The arsenic concentrations analyzed via XRF at the same location (i.e., OU4-SS-17-10) were less than the RAL in the 0- to 1-inch interval, in the 1- to 6-inch interval, and in the 6- to 12-inch interval. Sampling locations OU4-SS-17-06, OU4-SS-17-08, and OU4-SS-11-09 surround sample location OU4-SS-17-10, except to the east adjacent to the alley. At these surrounding locations, arsenic concentrations analyzed via XRF in 12 samples were less than the arsenic RAL. Overall, 40 discrete samples were analyzed for arsenic via XRF at off-site property SS-17. Only 1 of the 40 discrete samples contained arsenic above the RAL; this sample was submitted for laboratory analysis and was confirmed to exceed the RAL. In conclusion, the occurrence of arsenic above the RAL is isolated to one location at a depth from 12 to 18 inches. A focused assessment to define the extent of arsenic above the RAL between this off-site property and the alley behind this property is discussed in Section 4.

In summary, the samples containing arsenic concentrations above the RAL are isolated to one to two occurrences at five off-site properties, are deeper than 12 inches at three locations, and do not appear to be associated with a particular soil type or fill type observation. With respect

to fill, some soils with no observed fill had arsenic concentrations above the RAL, and some soils with observed fill (e.g., trace slag and black fines) had arsenic concentrations less than the RAL.

4 Summary/Recommendations

4.1 RAL Assessment Summary

The RAL Assessment results were used to evaluate the presence of metals at concentrations above RALs, to delineate the extent of metals above the RALs, to evaluate the use of XRF to analyze metals, and to recommend focused follow-up assessment activities with regard to the 17 off-site properties.

Four drip zone composite samples from off-site properties SS-13 through SS-16 contained lead concentrations in laboratory analytical samples above the lead RAL of 1,200: OU4-SS-13-COMP3 (0-1), OU4-SS-14-COMP4 (0-1), OU4-SS-15-COMP4 (0-1), and OU4-SS-16-COMP5 (0-1). These isolated concentrations only in the drip zone samples indicate that lead-based paints are the likely lead sources. To evaluate the source of lead in the drip zone, the DePue Group in conjunction with the IEPA and the appropriate health agencies will evaluate the presence of lead-based paint on structures or within soils in the drip zone.

Six discrete samples from five off-site properties SS-01, SS-03, SS-05, SS-11, and SS-17 contained arsenic concentrations in laboratory analytical samples above the arsenic RAL of 43 mg/kg: OU4-SS-01-11(6-12), OU4-SS-03-13(12-18), OU4-SS-05-09(1-6), OU4-SS-05-09(6-12), OU4-SS-11-12(12-18), and OU4-SS-17-10(12-18). The arsenic detected at these off-site properties appears to be isolated. Furthermore, none of the arsenic detections were greater than the non-carcinogenic arsenic RAL of 230 mg/kg. At off-site properties SS-01 and SS-05, the 1 to 2 detections of arsenic above the RAL are surrounded by numerous detections (i.e., 62 to 39 at SS-01 and SS-05, respectively) below the RAL. As such, no further sampling is necessary on these two off-site properties to delineate the extent of RAL exceedances.

At off-site properties SS-03, SS-11, and SS-17, the one detection of arsenic above the RAL is accompanied by several samples (i.e., 62, 51, and 39 samples at SS-03, SS-11, and SS-17, respectively) with arsenic levels less than the RAL. Furthermore, the one sample concentration above the RAL is at depths below 1 foot (i.e., in the 12- to 18-inch interval) at these three off-site property locations. Regardless, because the single exceedance is not bounded on all sides by non-RAL-exceeding sample concentrations, some focused additional characterization is recommended below as part of the Off-Site Soils RI to fully delineate the extent of the RAL exceedance on each of these three off-site properties.

As documented in this report, only arsenic and lead were detected at concentrations above their respective RALs and only cadmium approaches (but does not exceed) its respective RAL (Table 4). The remaining XRF metals (barium, chromium, cobalt, copper, iron, manganese, nickel, selenium, silver, and zinc) were detected at concentrations well below (1 to 2 orders of magnitude) their respective RALs. Mercury was also detected at concentrations well below (1 to 2 orders of magnitude) its RAL by laboratory analysis, but not by XRF analysis which over-predicts mercury concentrations. For the three metals that exceed or approach their respective RALs, the results of these data evaluations indicate that the XRF data can be used as quantitative data for lead and qualitative data for arsenic and cadmium.

4.2 RAL Assessment Recommendations

Based on the RAL Assessment, the following focused follow-up assessment activities are recommended:

To further evaluate the extent of arsenic at off-site properties SS-03, SS-11, and SS-17, one additional sampling location will be added adjacent to the locations where the arsenic concentrations were above RALs along the alleys to confirm that the arsenic is isolated and not associated with potentially site-related fill material in the adjacent alleys during the Off-site Soils RI.

In addition, to confirm that that XRF results that were lower than, but near their respective RALs, are indeed below the RAL limits, 6 sample locations will be re-analyzed as discussed in Section 3.3 during the Off-site Soils RI.

The RAL Assessment Work Plan (BBL, 2005) described additional sampling of all properties (up to 8) adjacent to each of the 17 off-site properties that are found to have a RAL exceedance. However, because all of the observed RAL exceedances are isolated (e.g., lead only in drip zone samples) and have been or will be (after the execution of the Off-site Soils RI) completely delineated (i.e., sample with RAL exceedance will be surrounded on all sides with samples not exceeding RALs), the adjacent property sampling envisioned in the RAL Assessment Work Plan is not necessary.

In addition, the RAL Assessment demonstrated that field XRF can be used for quantitative screening (barium, lead, and zinc; as well as manganese and mercury and possibly copper) and for qualitative screening (arsenic, cadmium, and iron,). The applicability of field XRF for future investigations will be evaluated based on the data quality objectives of those investigations and the RAL Assessment field XRF results and evaluation.

5 References

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Tables

TABLE 1

Summary of Sample Locations and Specified Analysis

New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

RAL Identification	IDPH Identification	Approximate Property Size (Area Square Feet)	Sampling Plan
SS-01	W-11	8,500	COMP 1: Front/side yard: 5-point composite (01-05) COMP 2: Backyard: 5-point composite (06-10) COMP 3: Backyard/side yard: 5 point composite (11-15) COMP 4: Front/side yard: 5 point composite (16-20) COMP 5: Drip zone: 4 point composite (21-24)
SS-02	S-11	6,675	COMP 1: Front yard: 4-point composite (01-04) COMP 2: Backyard/side by house: 5-point composite (05-09) COMP 3: Backyard: 5-point composite (10-14) COMP 4: Backyard by alley: 5-point composite (15-19) COMP 5: Drip zone: 4-point composite (20-23)
SS-03	S-16	5,500	COMP 1: Front yard: 5-point composite (01-05) COMP 2: Side yard: 5-point composite (06-10) COMP 3: Backyard: 5-point composite (11-15) COMP 4: Drip zone: 4-point composite (16-19)
SS-04	E-06	12,500	COMP 1: Right-side front yard: 5-point composite (01-05) COMP 2: Left-side front yard: 5-point composite (06-10) COMP 3: Left-side backyard: 5-point composite (11-15) COMP 4: Backyard: 5-point composite (16-20) COMP 5: Garden: 3-point composite (21-23) COMP 6: Drip zone: 4-point composite (24-27)
SS-05	W-05	5,175	COMP 1: Front/side yard: 5-point composite (01-05) COMP 2: Side yard: 4-point composite (06-09) COMP 3: Backyard: 5-point composite (10-14) Discrete: Garden: (15) COMP 4: Drip zone: 4-point composite (16-19)
SS-06	D-19	7,500	COMP 1: Side yard: 4-point composite (01-04) COMP 2: Backyard SE of house: 5-point composite (05-09) COMP 3: Backyard NE of house: 5-point composite (10-14) COMP 4: Side yard: 5-point composite (15-19) COMP 5: Drip zone: 4-point composite (20-23)
SS-07	W-02	7,500	COMP 1: Front yard: 5-point composite (01-05) COMP 2: Side yard: 4-point composite (06-09) COMP 3: Backyard: 5-point composite (10-14) COMP 4: Garden: 3-point composite (15-17) COMP 5: Drip zone: 4-point composite (18-21)
SS-08	D-11	7,500	COMP 1: Front yard: 5-point composite (01-05) COMP 2: Backyard: 5-point composite (06-10) COMP 3: Backyard: 5-point composite (11-15) COMP 4: Drip zone: 4-point composite (16-19)
SS-09	S-13	13,250	COMP 1: Front/Side yard: 5-point composite (01-05) COMP 2: Backyard: 5-point composite (06-10) COMP 3: Backyard: 5-point composite (11-15) COMP 4: Side/Front yard: 4-point composite (16-19) COMP 5: Drip Zone: 4-point composite (20-23)

TABLE 1

Summary of Sample Locations and Specified Analysis

New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

RAL Identification	IDPH Identification	Approximate Property Size (Area Square Feet)	Sampling Plan
SS-10	S-21	4,000	COMP 1: Front/Side yard: 4-point composite (01-04) COMP 2: Backyard: 4-point composite (05-08) Discrete: Garden: (9) Discrete: Garden: (10) COMP 3: Drip zone: 4-point composite (11-14)
SS-11	D-16	5,000	COMP 1: Front yard: 4-point composite (01-04) COMP 2: Backyard: 5-point composite (05-09) COMP 3: Drip zone: 4-point composite (10-13)
SS-12	S-19	5,000	COMP 1: Front yard: 5-point composite (01-05) COMP 2: Backyard: 5-point composite (06-10) COMP 3: Drip zone: 4-point composite (11-14)
SS-13	S-02	6,350	COMP 1: Backyard: 5-point composite (01-05) COMP 2: Backyard: 5-point composite (06-10) COMP 3: Drip zone: 4-point composite (11-14)
SS-14	W-14	9,500	COMP 1: Side yard: 5-point composite (01-05) COMP 2: Side yard: 5-point composite (06-10) COMP 3: Backyard: 5-point composite (11-15) Discrete: Garden: (16) Discrete: Garden: (17) COMP 4: Drip zone: 4-point composite (18-21)
SS-15	S-18	19,500 (approx)	COMP 1: Front/side yard: 5-point composite (01-05) COMP 2: Front/side yard: 5-point composite (06-10) COMP 3: Side yard: 5-point composite (11-15) COMP 4: Drip zone: 4-point composite (16-19)
SS-16	S-12	6,350	COMP 1: Front/side yard: 5-point composite (01-05) COMP 2: Side yard: 5-point composite (06-10) COMP 3: Backyard: 5-point composite (11-15) COMP 4: Backyard: 5-point composite (16-20) COMP 5: Drip zone: 4-point composite (21-24)
SS-17	W-06	4,500	COMP 1: 1 st half of lot: 5-point composite (01-05) COMP 2: 2 nd half of lot: 5-point composite (06-10)

TABLE 2
Summary of Composite Sample XRF and Laboratory Analytical Results
New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

Sample ID:		OU4-SS-01-COMP1(0-1)	OU4-SS-01-COMP1(1-6)	OU4-SS-01-COMP2(0-1)	OU4-SS-01-COMP2(1-6)	OU4-SS-01-COMP3(0-1)	OU4-SS-01-COMP3(1-6)	OU4-SS-01-COMP3(6-12)
Sample Depth(inches):		0 - 1 05/31/05	1 - 6 05/31/05	0 - 1 05/31/05	1 - 6 05/31/05	0 - 1 05/31/05	1 - 6 05/31/05	6 - 12 05/31/05
Date Collected:	Residential RAL	Units						
Metals - XRF (USEPA SW-846 6200)								
Arsenic	43	mg/kg	29.0	15.9	18.8	27.4	12.1	18.9
Barium	55000	mg/kg	2450	1750	2060	1610	1340	1400
Cadmium	390	mg/kg	65.1	63.8	41.0	39.3 U	87.9 J	61.0 J
Chromium	3900	mg/kg	125 J	115 U	118 U	120 U	115 U	115 U
Cobalt	47000	mg/kg	101 U	103 U	108 U	115 U	121 JQ	107 U
Copper	31000	mg/kg	30.9 J	46.6 J	26.9 J	16.0 J	22.6 J	35.5 J
Iron	230000	mg/kg	16300 U	16100 U	17600 U	19800 U	18700 U	18000 U
Lead	1200	mg/kg	646 J	437 J	629 J	405 J	287	230
Manganese	18000	mg/kg	467 J	575 J	480 J	499 J	490 UJ	485 UJ
Mercury	78	mg/kg	10.8 UJ	10.3 UJ	10.4 UJ	10.6 UJ	10.2 UJ	9.29 UJ
Nickel	16000	mg/kg	23.3 U	22.9 U	23.5 U	25.0 U	24.3 U	24.0 U
Selenium	3900	mg/kg	3.38 U	3.11 U	3.27 U	3.24 U	3.00 U	3.02 U
Silver	3900	mg/kg	26.8 UJ	26.9 UJ	27.1 UJ	27.4 UJ	26.7 UJ	26.6 UJ
Zinc	230000	mg/kg	2950 J	2420 J	2920 J	2280 J	2620 J	2220 J
Metals (USEPA SW-846 6000/7000)								
Aluminum	--	mg/kg	8330	NA	NA	8360	6160	NA
Antimony	--	mg/kg	6.62 U	NA	NA	6.54 U	6.45 U	NA
Arsenic	43	mg/kg	9.05	8.82	10.3	13.8	6.30	11.5
Barium	55000	mg/kg	4960	NA	NA	2340	1340	NA
Beryllium	--	mg/kg	0.551	NA	NA	0.604	0.362	NA
Cadmium	390	mg/kg	35.3	NA	NA	14.6	17.6	NA
Calcium	--	mg/kg	8950	NA	NA	5460	6920	NA
Chromium	3900	mg/kg	14.5	NA	NA	14.7	11.3	NA
Cobalt	47000	mg/kg	6.97	NA	NA	6.72	4.44 B	NA
Copper	31000	mg/kg	43.5	NA	NA	28.4	24.6	NA
Iron	230000	mg/kg	15200	NA	NA	13400	9980	NA
Lead	1200	mg/kg	612	NA	NA	314	168	NA
Magnesium	--	mg/kg	4280	NA	NA	3680	4060	NA
Manganese	18000	mg/kg	461	NA	NA	484	334	NA
Mercury	78	mg/kg	0.101 B	NA	NA	0.196	0.0700 B	NA
Nickel	16000	mg/kg	16.4	NA	NA	13.9	10.9	NA
Potassium	--	mg/kg	1380	NA	NA	1450	1140	NA
Selenium	3900	mg/kg	1.10 U	NA	NA	1.09 U	1.08 U	NA
Silver	3900	mg/kg	1.04 B	NA	NA	0.387 B	0.342 B	NA
Sodium	--	mg/kg	96.6 J	NA	NA	80.7 J	55.3 J	NA
Thallium	--	mg/kg	1.10 U	NA	NA	1.09 U	1.08 U	NA
Vanadium	--	mg/kg	21.3	NA	NA	19.7	14.8	NA
Zinc	230000	mg/kg	2540	NA	NA	1910	1420	NA
Miscellaneous								
Moisture Code 086	--	%	9.3	5.7	8.8	8.2	7	5.4
pH Code 067	--	Std. Units	7	7.1	6.6	6.7	7.1	7.3

Notes:

NA - not available

DW - dry weight

TABLE 2

Summary of Composite Sample XRF and Laboratory Analytical Results

New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

Sample ID:		OU4-SS-01-COMP3(12-18)	OU4-SS-01-COMP4(0-1)	OU4-SS-01-COMP4(1-6)	OU4-SS-01-COMP4(12-18)	OU4-SS-01-COMP5(0-1)	OU4-SS-01-COMP5(1-6)	OU4-SS-01-COMP5(6-12)
Sample Depth(inches):		12 - 18 05/31/05	0 - 1 06/01/05	1 - 6 06/01/05	12 - 18 06/01/05	0 - 1 06/01/05	1 - 6 06/01/05	6 - 12 06/01/05
Date Collected:	Residential RAL	Units						
Metals - XRF (USEPA SW-846 6200)								
Arsenic	43	mg/kg	14.4	22.4	26.3	19.0	17.0 U	17.2
Barium	55000	mg/kg	591 U	2050	1860	294 U	1100 U	1540
Cadmium	390	mg/kg	44.2 J	42.2 J	39.8 J	40.1 U	38.4 U	39.5 U
Chromium	3900	mg/kg	108 U	121 U	119 U	119 U	158 J	146 J
Cobalt	47000	mg/kg	100 U	110 U	105 U	120 U	109 U	108 U
Copper	31000	mg/kg	13.6 U	36.2 J	18.0 J	13.6 U	32.5 J	28.2 J
Iron	230000	mg/kg	16300 U	19200 U	17100 U	21500 U	18200 U	17300 U
Lead	1200	mg/kg	80.2	547	369	80.6	615	573
Manganese	18000	mg/kg	431 UJ	523 UJ	558 UJ	402 UJ	526 UJ	409 UJ
Mercury	78	mg/kg	8.56 UJ	10.4 UJ	10.6 UJ	8.74 UJ	10.7 UJ	10.5 UJ
Nickel	16000	mg/kg	22.3 U	24.0 U	23.6 U	25.0 U	24.4 U	24.3 U
Selenium	3900	mg/kg	2.77 U	3.34 U	3.10 U	2.74 U	3.35 U	3.31 U
Silver	3900	mg/kg	26.9 UJ	26.7 UJ	26.9 UJ	28.2 UJ	26.9 UJ	27.9 UJ
Zinc	230000	mg/kg	647 J	2970 J	2860 J	374 J	1890 J	2450 J
Metals (USEPA SW-846 6000/7000)								
Aluminum	--	mg/kg	NA	NA	NA	NA	10000	NA
Antimony	--	mg/kg	NA	NA	NA	NA	6.49 U	NA
Arsenic	43	mg/kg	12.3	10.1	10.6	11.1	8.90	10.0
Barium	55000	mg/kg	NA	NA	NA	NA	2050	NA
Beryllium	--	mg/kg	NA	NA	NA	NA	0.482	NA
Cadmium	390	mg/kg	NA	NA	NA	NA	16.3	NA
Calcium	--	mg/kg	NA	NA	NA	NA	11700	NA
Chromium	3900	mg/kg	NA	NA	NA	NA	24.5	NA
Cobalt	47000	mg/kg	NA	NA	NA	NA	7.55	NA
Copper	31000	mg/kg	NA	NA	NA	NA	36.1	NA
Iron	230000	mg/kg	NA	NA	NA	NA	16100	NA
Lead	1200	mg/kg	NA	NA	NA	NA	613	NA
Magnesium	--	mg/kg	NA	NA	NA	NA	7670	NA
Manganese	18000	mg/kg	NA	NA	NA	NA	478	NA
Mercury	78	mg/kg	NA	NA	NA	NA	0.0755 B	NA
Nickel	16000	mg/kg	NA	NA	NA	NA	19.2	NA
Potassium	--	mg/kg	NA	NA	NA	NA	1460	NA
Selenium	3900	mg/kg	NA	NA	NA	NA	1.08 U	NA
Silver	3900	mg/kg	NA	NA	NA	NA	0.376 B	NA
Sodium	--	mg/kg	NA	NA	NA	NA	126 J	NA
Thallium	--	mg/kg	NA	NA	NA	NA	1.08 U	NA
Vanadium	--	mg/kg	NA	NA	NA	NA	28.8	NA
Zinc	230000	mg/kg	NA	NA	NA	NA	2130	NA
Miscellaneous								
Moisture Code 086	--	%	8.6	6.2	5.7	7.3	7.6	10.2
pH Code 067	--	Std. Units	7.7	6.7	7	7.9	7.3	7.2

Notes:

NA - not available

DW - dry weight

TABLE 2
Summary of Composite Sample XRF and Laboratory Analytical Results

**New Jersey Zinc/Mobil Chemical Site
DePue, Illinois**

Sample ID:	OU4-SS-02-COMP1(0-1)	OU4-SS-02-COMP1(1-6)	OU4-SS-02-COMP1(6-12)	OU4-SS-02-COMP2(1-6)	OU4-SS-02-COMP2(6-12)	OU4-SS-02-COMP2(12-18)	OU4-SS-02-COMP3(0-1)
Sample Depth (Inches):	0 - 1 06/01/05	1 - 6 06/01/05	6 - 12 06/01/05	1 - 6 06/01/05	6 - 12 06/01/05	12 - 18 06/01/05	0 - 1 06/01/05
Date Collected:	Residential RAL	Units					
Metals - XRF (USEPA SW-846 6200)							
Arsenic	43	mg/kg	17.8	47.4	21.7	15.9	11.9 U
Barium	55000	mg/kg	789 U	2580	587 U	648	632
Cadmium	390	mg/kg	38.8 U	65.1 J	41.2 U	39.0 U	39.1 U
Chromium	3900	mg/kg	118 U	135 U	144 U	110 U	116 U
Cobalt	47000	mg/kg	126 U	140 U	256 J	141 J	R
Copper	31000	mg/kg	34.6 J	68.6 J	32.6 J	26.3 J	19.8 J
Iron	230000	mg/kg	24700	28800	56900	21600	23800
Lead	1200	mg/kg	298	734	147	151 J	275 J
Manganese	18000	mg/kg	620 UJ	737 UJ	705 UJ	453 UJ	515 UJ
Mercury	78	mg/kg	9.49 UJ	12.8 UJ	10.8 UJ	9.13 UJ	9.84 UJ
Nickel	16000	mg/kg	26.0 U	28.7 U	35.0 U	24.1 U	26.1 U
Selenium	3900	mg/kg	2.93 U	3.62 U	3.10 U	2.81 U	3.07 U
Silver	3900	mg/kg	27.2 UJ	28.1 UJ	29.1 UJ	27.2 U	27.3 U
Zinc	230000	mg/kg	1880 J	4880 J	1660 J	969 J	1200 J
Metals (USEPA SW-846 6000/7000)							
Aluminum	--	mg/kg	NA	13700	12200	13900	NA
Antimony	--	mg/kg	NA	6.40 U	6.47 U	6.59 U	NA
Arsenic	43	mg/kg	9.03	16.0	12.4	9.41	9.70
Barium	55000	mg/kg	NA	3190 J	511 J	602 J	NA
Beryllium	--	mg/kg	NA	0.925	1.30	0.699	NA
Cadmium	390	mg/kg	NA	38.3 J	7.51 J	12.5 J	NA
Calcium	--	mg/kg	NA	15700 J	11900 J	4490 J	NA
Chromium	3900	mg/kg	NA	23.2	20.6	21.6	NA
Cobalt	47000	mg/kg	NA	8.58	8.46	8.17	NA
Copper	31000	mg/kg	NA	60.2 J	30.2 J	27.4 J	NA
Iron	230000	mg/kg	NA	25700 J	30700 J	20100 J	NA
Lead	1200	mg/kg	NA	527	117	101	NA
Magnesium	--	mg/kg	NA	10300	6260	3430	NA
Manganese	18000	mg/kg	NA	745	658	667	NA
Mercury	78	mg/kg	NA	0.165	0.0699 B	0.0856 B	NA
Nickel	16000	mg/kg	NA	23.4	22.7	16.9	NA
Potassium	--	mg/kg	NA	1990 J	1890 J	1930 J	NA
Selenium	3900	mg/kg	NA	1.07 U	1.08 U	1.10 U	NA
Silver	3900	mg/kg	NA	1.48 B	0.409 B	0.552 B	NA
Sodium	--	mg/kg	NA	301 J	346 J	174 J	NA
Thallium	--	mg/kg	NA	2.07	2.33	1.46	NA
Vanadium	--	mg/kg	NA	41.6	33.9	36.3	NA
Zinc	230000	mg/kg	NA	3380	1140	779	NA
Miscellaneous							
Moisture Code 086	--	%	9.1	6.2	7.2	9	8.4
pH Code 067	--	Std. Units	6.5	7.1	7.3	7.3	7.4

Notes:

NA - not available

DW - dry weight

TABLE 2

Summary of Composite Sample XRF and Laboratory Analytical Results

New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

Sample ID:		DU4-SS-02-COMP3(1-6)	DU4-SS-02-COMP3(6-12)	DU4-SS-02-COMP4(1-6)	DU4-SS-02-COMP4(6-12)	DU4-SS-02-COMP5(0-1)	DU4-SS-02-COMP5(1-6)	DU4-SS-02-COMP5(6-12)
Sample Depth(inches):		1 - 6 06/01/05	6 - 12 06/01/05	1 - 6 06/01/05	6 - 12 06/01/05	0 - 1 06/01/05	1 - 6 06/01/05	6 - 12 06/01/05
Date Collected:	Residential RAL	Units						
Metals - XRF (USEPA SW-846 6200)								
Arsenic	43	mg/kg	14.3	11.9	22.1	18.4	19.3	31.3
Barium	55000	mg/kg	1210	587	2630	612	606	1130
Cadmium	390	mg/kg	41.7 J	39.1 U	60.1 J	39.7 U	40.0 U	60.5 J
Chromium	3900	mg/kg	119 U	114 U	137 U	120 U	117 U	123 U
Cobalt	47000	mg/kg	R	R	R	R	R	R
Copper	31000	mg/kg	41.5 J	17.4 J	89.8 J	28.0 J	32.6 J	29.6 J
Iron	230000	mg/kg	23300	21000 U	28100	24600	25100	24200
Lead	1200	mg/kg	217 J	87.2 J	412 J	170 J	330 J	478 J
Manganese	18000	mg/kg	529 J	554 J	540 J	564 J	436 UJ	530 UJ
Mercury	78	mg/kg	10.0 UJ	9.42 UJ	11.1 UJ	9.54 UJ	10.2 UJ	10.9 UJ
Nickel	16000	mg/kg	25.5 U	25.2 U	27.7 U	25.7 U	25.8 U	25.9 U
Selenium	3900	mg/kg	2.89 U	2.66 U	3.52 U	2.87 U	3.24 U	3.60 U
Silver	3900	mg/kg	27.3 U	27.2 U	28.6 U	27.8 U	27.9 U	28.4 U
Zinc	230000	mg/kg	1730 J	1140 J	3070 J	1460 J	1700 J	2450 J
Metals (USEPA SW-846 6000/7000)								
Aluminum	--	mg/kg	NA	NA	NA	NA	NA	10800
Antimony	--	mg/kg	NA	NA	NA	NA	NA	6.83 U
Arsenic	43	mg/kg	12.0	9.45	11.9	10.4	13.5	14.1
Barium	55000	mg/kg	NA	NA	NA	NA	NA	2370 J
Beryllium	--	mg/kg	NA	NA	NA	NA	NA	0.853
Cadmium	390	mg/kg	NA	NA	NA	NA	NA	26.0 J
Calcium	--	mg/kg	NA	NA	NA	NA	NA	5360 J
Chromium	3900	mg/kg	NA	NA	NA	NA	NA	21.7
Cobalt	47000	mg/kg	NA	NA	NA	NA	NA	6.20
Copper	31000	mg/kg	NA	NA	NA	NA	NA	40.2 J
Iron	230000	mg/kg	NA	NA	NA	NA	NA	20700 J
Lead	1200	mg/kg	NA	NA	NA	NA	NA	405
Magnesium	--	mg/kg	NA	NA	NA	NA	NA	3400
Manganese	18000	mg/kg	NA	NA	NA	NA	NA	598
Mercury	78	mg/kg	NA	NA	NA	NA	NA	0.137
Nickel	16000	mg/kg	NA	NA	NA	NA	NA	18.3
Potassium	--	mg/kg	NA	NA	NA	NA	NA	1600 J
Selenium	3900	mg/kg	NA	NA	NA	NA	NA	1.14 U
Silver	3900	mg/kg	NA	NA	NA	NA	NA	0.769 B
Sodium	--	mg/kg	NA	NA	NA	NA	NA	170 J
Thallium	--	mg/kg	NA	NA	NA	NA	NA	2.19
Vanadium	--	mg/kg	NA	NA	NA	NA	NA	30.6
Zinc	230000	mg/kg	NA	NA	NA	NA	NA	1970
Miscellaneous								
Moisture Code 086	--	%	8.3	10.3	11.9	12.6	13.7	12.2
pH Code 067	--	Std. Units	7	6.7	7.1	6.6	6.7	6.6

Notes:

NA - not available

DW - dry weight

TABLE 2

Summary of Composite Sample XRF and Laboratory Analytical Results

New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

Sample ID:		OU4-SS-03-COMP1(0-1)	OU4-SS-03-COMP1(1-6)	OU4-SS-03-COMP1(6-12)	OU4-SS-03-COMP2(0-1)	OU4-SS-03-COMP2(1-6)	OU4-SS-03-COMP2(6-12)	OU4-SS-03-COMP2(12-18)
Sample Depth (Inches):		0 - 1 06/02/05	1 - 6 06/02/05	6 - 12 06/02/05	0 - 1 06/02/05	1 - 6 06/02/05	6 - 12 06/02/05	12 - 18 06/02/05
Date Collected:	Residential RAL	Units						
Metals - XRF (USEPA SW-846 6200)								
Arsenic	43	mg/kg	26.4	19.9	22.4	18.9	30.1	26.5
Barium	55000	mg/kg	2900	998	583	916	1610	865
Cadmium	390	mg/kg	111	85.5	37.9 U	37.2 U	51.3	40.0 U
Chromium	3900	mg/kg	139 U	130 U	112 U	113 U	124 U	126 U
Cobalt	47000	mg/kg	R	R	R	R	R	R
Copper	31000	mg/kg	82.5 J	49.3 J	29.8 J	42.3 J	53.6 J	45.8 J
Iron	230000	mg/kg	29000	29500	23100 U	21500 U	27600	30700
Lead	1200	mg/kg	640 J	290 J	229 J	285 J	425 J	398 J
Manganese	18000	mg/kg	916 J	1030 J	956 J	551 UJ	702 J	729 J
Mercury	78	mg/kg	12.8 UJ	11.3 UJ	9.75 UJ	9.94 UJ	11.9 UJ	11.5 UJ
Nickel	16000	mg/kg	28.0 U	27.1 U	24.9 U	23.8 U	28.4 U	28.3 U
Selenium	3900	mg/kg	3.52 U	2.99 U	2.76 U	3.08 U	3.12 U	3.22 U
Silver	3900	mg/kg	28.2 U	27.6 U	26.5 U	26.0 U	27.7 U	28.1 U
Zinc	230000	mg/kg	7150 J	5030 J	2270 J	2840 J	5180 J	4390 J
Metals (USEPA SW-846 6000/7000)								
Aluminum	--	mg/kg	11600	NA	NA	NA	NA	NA
Antimony	--	mg/kg	6.60 UJ	NA	NA	NA	NA	NA
Arsenic	43	mg/kg	18.2	19.8	11.1	12.8	17.8	16.2
Barium	55000	mg/kg	6200	NA	NA	NA	NA	NA
Beryllium	--	mg/kg	0.823	NA	NA	NA	NA	NA
Cadmium	390	mg/kg	109 J	49.7 J	NA	NA	NA	NA
Calcium	--	mg/kg	9510	NA	NA	NA	NA	NA
Chromium	3900	mg/kg	21.3	NA	NA	NA	NA	NA
Cobalt	47000	mg/kg	9.71	NA	NA	NA	NA	NA
Copper	31000	mg/kg	97.1	NA	NA	NA	NA	NA
Iron	230000	mg/kg	28500	NA	NA	NA	NA	NA
Lead	1200	mg/kg	584	NA	NA	NA	NA	NA
Magnesium	--	mg/kg	3140	NA	NA	NA	NA	NA
Manganese	18000	mg/kg	832	NA	NA	NA	NA	NA
Mercury	78	mg/kg	0.208	NA	NA	NA	NA	NA
Nickel	16000	mg/kg	18.9	NA	NA	NA	NA	NA
Potassium	--	mg/kg	1940	NA	NA	NA	NA	NA
Selenium	3900	mg/kg	2.68	NA	NA	NA	NA	NA
Silver	3900	mg/kg	2.06 J	NA	NA	NA	NA	NA
Sodium	--	mg/kg	175	NA	NA	NA	NA	NA
Thallium	--	mg/kg	2.55	NA	NA	NA	NA	NA
Vanadium	--	mg/kg	31.2 J	NA	NA	NA	NA	NA
Zinc	230000	mg/kg	5850 J	NA	NA	NA	NA	NA
Miscellaneous								
Moisture Code 086	--	%	9.1	7.6	6.2	4.4	6	9.4
pH Code 067	--	Std. Units	6.2	6.2	7	6.6	6.9	7.3

Notes:

NA - not available

DW - dry weight

TABLE 2

Summary of Composite Sample XRF and Laboratory Analytical Results

New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

Sample ID:		OU4-SS-03-COMP3(0-1)	OU4-SS-03-COMP3(1-6)	OU4-SS-03-COMP3(6-12)	OU4-SS-03-COMP3(12-18)	OU4-SS-03-COMP4(0-1)	OU4-SS-03-COMP4(12-18)	OU4-SS-04-COMP1(0-1)
Sample Depth (Inches):		0 - 1 06/02/05	1 - 6 06/02/05	6 - 12 06/02/05	12 - 18 06/02/05	0 - 1 06/02/05	12 - 18 06/02/05	0 - 1 06/03/05
Date Collected:	Residential RAL	Units						
Metals - XRF (USEPA SW-846 6200)								
Arsenic	43	mg/kg	15.2	29.8	20.1	31.6	45.1	20.1
Barium	55000	mg/kg	788	1140	868	343 U	688	342
Cadmium	390	mg/kg	56.0	79.6	41.4 U	40.6 U	39.6 U	41.8 U
Chromium	3900	mg/kg	120 U	135 U	136 U	132 U	124 U	115 U
Cobalt	47000	mg/kg	R	R	R	R	R	R
Copper	31000	mg/kg	61.2 J	54.3 J	37.6 J	29.2 J	48.6 J	37.8 J
Iron	230000	mg/kg	27200	34400	42700	39500	25500 U	28000
Lead	1200	mg/kg	404 J	442 J	346 J	269 J	778 J	270 J
Manganese	18000	mg/kg	600 UJ	714 J	909 J	652 UJ	754 J	807 J
Mercury	78	mg/kg	11.0 UJ	12.2 UJ	11.8 UJ	11.4 UJ	11.3 UJ	12.1 JQ
Nickel	16000	mg/kg	27.2 U	30.0 U	31.7 U	30.6 U	27.4 U	28.4 U
Selenium	3900	mg/kg	3.29 U	3.37 U	3.45 U	3.01 U	3.78 U	3.01 U
Silver	3900	mg/kg	27.3 U	28.3 U	29.5 U	28.5 U	27.8 U	29.2 U
Zinc	230000	mg/kg	3860 J	4660 J	3560 J	2100 J	3300 J	2070 J
Metals (USEPA SW-846 6000/7000)								
Aluminum	--	mg/kg	NA	9330	NA	NA	7930	NA
Antimony	--	mg/kg	NA	1.12 J	NA	NA	1.27 J	NA
Arsenic	43	mg/kg	15.4	19.7	23.5	20.5	12.1	10.9
Barium	55000	mg/kg	NA	1850	NA	NA	1390	NA
Beryllium	--	mg/kg	NA	0.947	NA	NA	0.726	NA
Cadmium	390	mg/kg	NA	41.6 J	NA	NA	30.0 J	NA
Calcium	--	mg/kg	NA	21800	NA	NA	7610	NA
Chromium	3900	mg/kg	NA	18.7	NA	NA	23.7	NA
Cobalt	47000	mg/kg	NA	10.2	NA	NA	7.83	NA
Copper	31000	mg/kg	NA	99.9	NA	NA	57.9	NA
Iron	230000	mg/kg	NA	28600	NA	NA	22100	NA
Lead	1200	mg/kg	NA	519	NA	NA	769	NA
Magnesium	--	mg/kg	NA	10100	NA	NA	3030	NA
Manganese	18000	mg/kg	NA	939	NA	NA	671	NA
Mercury	78	mg/kg	NA	0.146	NA	NA	0.259	NA
Nickel	16000	mg/kg	NA	18.4	NA	NA	17.3	NA
Potassium	--	mg/kg	NA	1580	NA	NA	1160	NA
Selenium	3900	mg/kg	NA	1.83	NA	NA	1.58	NA
Silver	3900	mg/kg	NA	1.36 J	NA	NA	1.14 J	NA
Sodium	--	mg/kg	NA	187	NA	NA	122	NA
Thallium	--	mg/kg	NA	1.98	NA	NA	1.78	NA
Vanadium	--	mg/kg	NA	26.8 J	NA	NA	24.4 J	NA
Zinc	230000	mg/kg	NA	4050 J	NA	NA	2480 J	NA
Miscellaneous								
Moisture Code 086	--	%	9	8.4	11.6	11.5	12	14.6
pH Code 067	--	Std. Units	6	6	6.5	7.2	6.5	7.2

Notes:

NA - not available

DW - dry weight

TABLE 2
Summary of Composite Sample XRF and Laboratory Analytical Results

**New Jersey Zinc/Mobil Chemical Site
 DePue, Illinois**

Sample ID:			OU4-SS-04-COMP1(1-6)	OU4-SS-04-COMP1(6-12)	OU4-SS-04-COMP2(0-1)	OU4-SS-04-COMP2(1-6)	OU4-SS-04-COMP2(12-18)	OU4-SS-04-COMP3(0-1)	OU4-SS-04-COMP3(1-6)
Sample Depth(Inches):		Units	1 - 6 06/03/05	6 - 12 06/03/05	0 - 1 06/03/05	1 - 6 06/03/05	12 - 18 06/03/05	0 - 1 06/03/05	1 - 6 06/03/05
Date Collected:	Residential RAL								
Metals - XRF (USEPA SW-846 6200)									
Arsenic	43	mg/kg	13.8 U	13.3	22.8	10.9 U	9.85	12.3 U	18.0
Barium	55000	mg/kg	579 J	382 J	456 J	636 J	326 U	761 J	644 J
Cadmium	390	mg/kg	63.9	40.0 U	45.3	37.6 U	40.5 U	38.3 U	50.7
Chromium	3900	mg/kg	122 U	124 J	110 U	109 U	123 U	117 U	117 U
Cobalt	47000	mg/kg	R	R	R	R	166 J	126 U	125 U
Copper	31000	mg/kg	45.7 J	103 J	46.7 J	61.4 J	15.2 U	61.4 J	54.8 J
Iron	230000	mg/kg	24800	19500 U	17800 U	16400 U	24300 U	23900 U	23200 U
Lead	1200	mg/kg	361 J	225 J	221 J	234 J	148 J	293 J	218 J
Manganese	18000	mg/kg	874 J	1100 J	647 J	802 J	843 J	724 UJ	772 UJ
Mercury	78	mg/kg	10.7 UJ	10.4 UJ	10.3 UJ	9.74 UJ	10.3 UJ	10.6 UJ	10.9 UJ
Nickel	16000	mg/kg	27.1 U	24.9 U	24.2 U	23.8 U	27.2 U	26.8 U	26.4 U
Selenium	3900	mg/kg	3.17 U	2.97 U	2.93 U	2.88 U	3.12 U	2.96 U	3.05 U
Silver	3900	mg/kg	27.8 UJ	27.9 UJ	26.8 UJ	26.2 UJ	28.5 UJ	27.0 UJ	27.2 UJ
Zinc	230000	mg/kg	3240 J	2580 J	2480 J	2510 J	1770 J	3240 J	3290 J
Metals (USEPA SW-846 6000/7000)									
Aluminum	--	mg/kg	NA	11000	11100	NA	NA	NA	12300
Antimony	--	mg/kg	NA	6.64 U	6.56 U	NA	NA	NA	6.32 U
Arsenic	43	mg/kg	14.2 J	7.96 J	7.89 J	8.87 J	8.51 J	10.3 J	9.99 J
Barium	55000	mg/kg	NA	442 J	472 J	NA	NA	NA	564 J
Beryllium	--	mg/kg	NA	0.839	0.544	NA	NA	NA	0.787
Cadmium	390	mg/kg	NA	7.82 J	19.8 J	NA	NA	NA	26.9 J
Calcium	--	mg/kg	NA	2930	31500	NA	NA	NA	5030
Chromium	3900	mg/kg	NA	18.1 J	17.7 J	NA	NA	NA	18.7 J
Cobalt	47000	mg/kg	NA	9.18	8.46	NA	NA	NA	9.55
Copper	31000	mg/kg	NA	64.0 J	38.8 J	NA	NA	NA	45.0 J
Iron	230000	mg/kg	NA	14900 J	15000 J	NA	NA	NA	19300 J
Lead	1200	mg/kg	NA	129 J	143 J	NA	NA	NA	166 J
Magnesium	--	mg/kg	NA	2110	16800	NA	NA	NA	2470
Manganese	18000	mg/kg	NA	1760 J	815 J	NA	NA	NA	830 J
Mercury	78	mg/kg	NA	0.0860 B	0.0569 B	NA	NA	NA	0.0465 B
Nickel	16000	mg/kg	NA	23.3	15.4	NA	NA	NA	19.7
Potassium	--	mg/kg	NA	1630 J	2170 J	NA	NA	NA	1710 J
Selenium	3900	mg/kg	NA	1.11 U	1.09 U	NA	NA	NA	1.05 U
Silver	3900	mg/kg	NA	0.286 B	0.560 B	NA	NA	NA	0.635 B
Sodium	--	mg/kg	NA	72.2 B	80.5 B	NA	NA	NA	66.4 B
Thallium	--	mg/kg	NA	1.70	1.09 U	NA	NA	NA	1.05 U
Vanadium	--	mg/kg	NA	29.9 J	29.3 J	NA	NA	NA	34.2 J
Zinc	230000	mg/kg	NA	1560 J	1460 J	NA	NA	NA	2520 J
Miscellaneous									
Moisture Code 086	--	%	6.5	9.7	8.5	3	10.7	5.9	5
pH Code 067	--	Std. Units	7.2	7.2	6.9	7	7	6.9	6.7

Notes:

NA - not available

DW - dry weight

TABLE 2

Summary of Composite Sample XRF and Laboratory Analytical Results

New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

Sample ID:			OU4-SS-04-COMP4(0-1) 0 - 1 06/02/05	OU4-SS-04-COMP4(1-6) 1 - 6 06/02/05	OU4-SS-04-COMP5(1-6) 1 - 6 06/02/05	OU4-SS-04-COMP5(12-18) 12 - 18 06/02/05	OU4-SS-04-COMP6(0-1) 0 - 1 06/03/05	OU4-SS-04-COMP6(1-6) 1 - 6 06/03/05	OU4-SS-05-COMP1(0-1) 0 - 1 06/06/05
Sample Depth (Inches):		Units							
Date Collected:	Residential RAL								
Metals - XRF (USEPA SW-846 6200)									
Arsenic	43	mg/kg	20.9	11.5 U	7.17 U	9.95 U	28.1	25.7	17.2
Barium	55000	mg/kg	349 J	572 J	301 U	570 J	284 UJ	669 J	2660 J
Cadmium	390	mg/kg	45.5	38.8 U	42.1 U	41.2 U	37.9 U	42.0 U	45.1 J
Chromium	3900	mg/kg	114 U	113 U	111 U	117 U	107 U	126 U	124 U
Cobalt	47000	mg/kg	120 U	115 U	104 U	130 JQ	107 U	133 U	102 U
Copper	31000	mg/kg	34.3 J	78.3 J	14.6 U	39.3 J	36.1 J	71.6 J	32.6 J
Iron	230000	mg/kg	22000 U	20100 U	14900 U	18300 U	17500 U	24800 U	16200 U
Lead	1200	mg/kg	361 J	247 J	69.7 J	166 J	316 J	415 J	359 J
Manganese	18000	mg/kg	837 UJ	832 UJ	1200 J	893 UJ	515 UJ	657 UJ	480 UJ
Mercury	78	mg/kg	10.4 UJ	9.98 UJ	8.99 UJ	10.1 UJ	8.97 UJ	11.0 UJ	9.83 UJ
Nickel	16000	mg/kg	25.9 U	24.5 U	24.2 U	25.1 U	23.7 U	27.5 U	23.2 U
Selenium	3900	mg/kg	3.14 U	2.91 U	2.88 U	3.03 U	3.05 U	3.35 U	3.06 U
Silver	3900	mg/kg	27.0 UJ	27.2 UJ	29.2 UJ	28.7 UJ	26.5 UJ	29.4 UJ	26.9 UJ
Zinc	230000	mg/kg	1510 J	1950 J	1040 J	1710 J	1690 J	2950 J	2510 J
Metals (USEPA SW-846 6000/7000)									
Aluminum	--	mg/kg	NA	NA	9010	NA	NA	12800	NA
Antimony	--	mg/kg	NA	NA	7.24 U	NA	NA	6.91 U	NA
Arsenic	43	mg/kg	9.17 J	8.31 J	5.27 J	9.26 J	12.5 J	10.0 J	9.03
Barium	55000	mg/kg	NA	NA	256 J	NA	NA	577 J	NA
Beryllium	--	mg/kg	NA	NA	0.579	NA	NA	0.667	NA
Cadmium	390	mg/kg	NA	NA	5.02 J	NA	NA	23.9 J	NA
Calcium	--	mg/kg	NA	NA	3210	NA	NA	43700	NA
Chromium	3900	mg/kg	NA	NA	15.5 J	NA	NA	25.8 J	NA
Cobalt	47000	mg/kg	NA	NA	8.39	NA	NA	9.55	NA
Copper	31000	mg/kg	NA	NA	17.4 J	NA	NA	47.8 J	NA
Iron	230000	mg/kg	NA	NA	12400 J	NA	NA	17700 J	NA
Lead	1200	mg/kg	NA	NA	39.4 J	NA	NA	233 J	NA
Magnesium	--	mg/kg	NA	NA	1710	NA	NA	27100	NA
Manganese	18000	mg/kg	NA	NA	1320 J	NA	NA	956 J	NA
Mercury	78	mg/kg	NA	NA	0.0298 B	NA	NA	0.0889 B	NA
Nickel	16000	mg/kg	NA	NA	19.0	NA	NA	18.5	NA
Potassium	--	mg/kg	NA	NA	2510 J	NA	NA	2000 J	NA
Selenium	3900	mg/kg	NA	NA	1.21 U	NA	NA	1.15 U	NA
Silver	3900	mg/kg	NA	NA	2.41 U	NA	NA	0.614 B	NA
Sodium	--	mg/kg	NA	NA	69.9 B	NA	NA	99.5 B	NA
Thallium	--	mg/kg	NA	NA	1.34	NA	NA	1.15 U	NA
Vanadium	--	mg/kg	NA	NA	22.7 J	NA	NA	32.1 J	NA
Zinc	230000	mg/kg	NA	NA	680 J	NA	NA	2000 J	NA
Miscellaneous									
Moisture Code 086	--	%	7.2	5.2	17.1	12.6	6.9	13.2	7.3
pH Code 067	--	Std. Units	6.6	7	7.5	7.5	7	7.4	6.8

Notes:

NA - not available

DW - dry weight

TABLE 2

Summary of Composite Sample XRF and Laboratory Analytical Results

New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

Sample ID:			OU4-SS-05-COMP1(1-6)	OU4-SS-05-COMP2(0-1)	OU4-SS-05-COMP2(1-6)	OU4-SS-05-COMP2(6-12)	OU4-SS-05-COMP3(1-6)	OU4-SS-05-COMP3(6-12)	OU4-SS-05-COMP4(0-1)
Sample Depth(Inches):		Units	1 - 6 06/06/05	0 - 1 06/06/05	1 - 6 06/06/05	6 - 12 06/06/05	1 - 6 06/06/05	6 - 12 06/06/05	0 - 1 06/06/05
Metals - XRF (USEPA SW-846 6200)									
Arsenic	43	mg/kg	16.5	13.3 U	26.7	21.3	17.8	10.8	16.5
Barium	55000	mg/kg	1760 J	1890 J	1570 J	266 UJ	1640 J	535 J	1640 J
Cadmium	390	mg/kg	43.7 J	38.0 U	45.9 J	36.8 U	38.5 U	43.6 J	39.5 U
Chromium	3900	mg/kg	118 U	111 U	207 J	104 U	119 U	109 U	115 U
Cobalt	47000	mg/kg	105 U	105 U	124 U	87.9 U	107 U	112 U	96.9 U
Copper	31000	mg/kg	30.8 J	32.4 J	68.0 J	32.3 J	36.8 J	13.6 U	24.8 J
Iron	230000	mg/kg	17400 U	18300 U	24900 U	12900 U	18200 U	19700 U	13700 U
Lead	1200	mg/kg	290 J	382 J	228 J	47.8 U	215 J	85.0 J	555 J
Manganese	18000	mg/kg	526 UJ	595 J	575 J	321 J	472 UJ	452 UJ	414 UJ
Mercury	78	mg/kg	9.63 UJ	10.2 UJ	10.1 UJ	7.44 UJ	9.37 UJ	8.82 UJ	10.5 UJ
Nickel	16000	mg/kg	23.2 U	26.7 JQ	25.8 U	20.5 U	24.2 U	23.7 U	23.3 U
Selenium	3900	mg/kg	2.88 U	2.97 U	2.98 U	2.52 U	2.96 U	2.69 U	3.25 U
Silver	3900	mg/kg	26.7 UJ	26.5 UJ	26.8 UJ	25.7 UJ	27.0 UJ	26.5 UJ	27.4 UJ
Zinc	230000	mg/kg	2460 J	2300 J	2050 J	363 J	2130 J	947 J	2550 J
Metals (USEPA SW-846 6000/7000)									
Aluminum	--	mg/kg	NA	NA	7890	NA	9570	NA	8480
Antimony	--	mg/kg	NA	NA	6.35 U	NA	6.38 U	NA	6.85 U
Arsenic	43	mg/kg	10.3	12.8	26.8	16.9	9.01	7.59	8.20
Barium	55000	mg/kg	NA	NA	2400	NA	2440	NA	3970
Beryllium	--	mg/kg	NA	NA	0.759	NA	0.571	NA	0.452
Cadmium	390	mg/kg	NA	NA	14.0	NA	14.7	NA	19.6
Calcium	--	mg/kg	NA	NA	39900	NA	33000	NA	5740
Chromium	3900	mg/kg	NA	NA	30.8	NA	21.0	NA	22.3
Cobalt	47000	mg/kg	NA	NA	5.68	NA	8.12	NA	7.20
Copper	31000	mg/kg	NA	NA	39.2 J	NA	26.5 J	NA	34.2 J
Iron	230000	mg/kg	NA	NA	14000	NA	14600	NA	14100
Lead	1200	mg/kg	NA	NA	179	NA	123	NA	1080
Magnesium	--	mg/kg	NA	NA	22800	NA	20600	NA	3840
Manganese	18000	mg/kg	NA	NA	439	NA	506	NA	450
Mercury	78	mg/kg	NA	NA	0.149	NA	0.109	NA	0.0950 B
Nickel	16000	mg/kg	NA	NA	14.2	NA	16.2	NA	14.6
Potassium	--	mg/kg	NA	NA	1540	NA	1940	NA	1600
Selenium	3900	mg/kg	NA	NA	1.06 U	NA	1.06 U	NA	1.14 U
Silver	3900	mg/kg	NA	NA	0.359 B	NA	0.381 B	NA	0.552 B
Sodium	--	mg/kg	NA	NA	178	NA	132	NA	83.3 B
Thallium	--	mg/kg	NA	NA	1.06 U	NA	1.00 B	NA	1.14 U
Vanadium	--	mg/kg	NA	NA	20.0	NA	23.3	NA	22.7
Zinc	230000	mg/kg	NA	NA	1280	NA	1350	NA	2470
Miscellaneous									
Moisture Code 086	--	%	3.8	8.4	5.5	5.3	5.9	5.1	12.4
pH Code 067	--	Std. Units	6.7	7	7.4	7.6	7.4	7.6	6.6

Notes:

NA - not available

DW - dry weight

TABLE 2

Summary of Composite Sample XRF and Laboratory Analytical Results

New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

Sample ID:			OU4-SS-06-COMP1(1-6)	OU4-SS-06-COMP2(1-6)	OU4-SS-06-COMP3(1-6)	OU4-SS-06-COMP4(1-6)	OU4-SS-06-COMP5(6-12)	OU4-SS-07-COMP1(1-6)	OU4-SS-07-COMP2(6-12)
Sample Depth (Inches):		Units	1 - 6 06/07/05	1 - 6 06/06/05	1 - 6 06/07/05	1 - 6 06/07/05	6 - 12 06/07/05	1 - 6 06/07/05	6 - 12 06/07/05
Metals - XRF (USEPA SW-846 6200)									
Arsenic	43	mg/kg	12.4 U	17.7	15.6	29.2	13.2	26.1	16.0
Barium	55000	mg/kg	1190 J	1300 J	1980 J	1380 J	327 UJ	3990 J	1100 J
Cadmium	390	mg/kg	52.7 J	71.0 J	71.4	87.6	41.6 U	59.7	39.3 U
Chromium	3900	mg/kg	144 J	125 U	133 U	136 U	125 U	143 U	123 U
Cobalt	47000	mg/kg	127 U	125 U	142 U	152 U	145 U	134 U	133 U
Copper	31000	mg/kg	51.0 J	52.2 J	48.0	66.7	36.2	81.5	41.2 J
Iron	230000	mg/kg	24500 UJ	23400 UJ	28800 J	33000 J	30400 J	25700 J	27400 J
Lead	1200	mg/kg	295 J	356 J	360 J	472 J	168 J	498 J	275 J
Manganese	18000	mg/kg	839 UJ	694 UJ	725 J	709 J	508 UJ	748 J	490 UJ
Mercury	78	mg/kg	11.4 UJ	11.6 UJ	12.6 UJ	12.3 UJ	11.9 JQ	13.1 UJ	16.1 JQ
Nickel	16000	mg/kg	26.5 U	26.0 U	28.8 U	29.7 U	28.7 U	28.8 U	26.9 U
Selenium	3900	mg/kg	3.05 U	3.25 U	3.29 U	3.30 U	2.99 U	3.40 U	3.03 U
Silver	3900	mg/kg	27.2 UJ	27.5 UJ	28.1 UJ	28.6 UJ	28.8 UJ	28.6 UJ	27.6 UJ
Zinc	230000	mg/kg	4570	4690	5780	5090	2100	5100	1920
Metals (USEPA SW-846 6000/7000)									
Aluminum	--	mg/kg	10700	10400	11700	13300	10500	9660	10300
Antimony	--	mg/kg	6.39 U	6.37 U	6.47 U	6.38 U	6.85 U	6.33 U	6.31 U
Arsenic	43	mg/kg	15.0	14.3	13.6	15.4	13.0	14.3	9.56
Barium	55000	mg/kg	1960	2490	2740	1680	252	6030	1090
Beryllium	--	mg/kg	0.825	0.754	0.836	1.15	1.06	1.20	0.875
Cadmium	390	mg/kg	37.5	37.5	56.4	38.4	16.8	42.3	6.39
Calcium	--	mg/kg	5190	3900	7940	9200	3830	13600	11600
Chromium	3900	mg/kg	20.3	17.4	19.1	24.1	21.6	16.8	17.0
Cobalt	47000	mg/kg	9.73	8.22	8.64	11.0	7.48	8.19	6.86
Copper	31000	mg/kg	49.9 J	52.0 J	60.4 J	55.7 J	34.5 J	69.6 J	29.7 J
Iron	230000	mg/kg	24200	20600	20100	24800	26400	18800	17100
Lead	1200	mg/kg	252	326	281	287	134	404	182
Magnesium	--	mg/kg	2600	2210	4840	4580	2290	6790	6810
Manganese	18000	mg/kg	774	788	711	855	628	586	472
Mercury	78	mg/kg	0.0719 B	0.0837 B	0.0704 B	0.125	0.0524 B	0.114	0.102 B
Nickel	16000	mg/kg	20.1	17.5	18.7	23.1	20.7	19.0	17.7
Potassium	--	mg/kg	1630	1640	1960	1950	1560	1930	1880
Selenium	3900	mg/kg	1.06 U	1.09	1.08 U	1.06 U	1.14 U	1.05 U	1.05 U
Silver	3900	mg/kg	0.906 B	1.25 B	1.26 B	1.07 B	0.326 B	1.77 B	0.652 B
Sodium	--	mg/kg	60.1 B	41.7 B	50.4 B	127	135	135	135
Thallium	--	mg/kg	1.10	1.06 U	1.29	1.29	1.23	1.20	1.10
Vanadium	--	mg/kg	31.9	28.5	30.4	34.9	31.2	26.8	26.5
Zinc	230000	mg/kg	4050	4130	4250	2960	2160	4100	1120
Miscellaneous									
Moisture Code 086	--	%	6.1	5.8	7.2	5.9	12.4	5.2	4.9
pH Code 067	--	Std. Units	7.2	7.1	7.1	7.5	7.3	7.2	7.9

Notes:

NA - not available

DW - dry weight

TABLE 2
Summary of Composite Sample XRF and Laboratory Analytical Results

**New Jersey Zinc/Mobil Chemical Site
DePue, Illinois**

Sample ID:			OU4-SS-07-COMP4(1-6)	OU4-SS-07-COMP5(1-6)	OU4-SS-08-COMP2(0-1)	OU4-SS-08-COMP3(0-1)	OU4-SS-08-COMP3(1-6)	OU4-SS-08-COMP4(0-1)	OU4-SS-09-COMP1(1-6)	
Sample Depth(inches):	Date Collected:	Residential RAL	Units	1 - 6 06/07/05	1 - 6 06/07/05	0 - 1 06/08/05	0 - 1 06/08/05	1 - 6 06/08/05	0 - 1 06/08/05	1 - 6 06/08/05
Metals - XRF (USEPA SW-846 6200)										
Arsenic	43	mg/kg	16.5	15.8	21.2 J	27.2 J	31.5 J	15.2 J	24.7 J	
Barium	55000	mg/kg	1710 J	1650 J	1290 J	4820 J	4950 J	713 J	1340 J	
Cadmium	390	mg/kg	72.6 J	77.8 J	102 J	150 J	128 J	102 J	43.4 J	
Chromium	3900	mg/kg	131 U	123 U	124 U	159 U	162 U	121 U	130 U	
Cobalt	47000	mg/kg	116 U	115 U	115 U	151 U	158 U	122 U	149 U	
Copper	31000	mg/kg	65.2 J	47.8 J	63.5 J	142 J	113 J	47.3 J	65.8 J	
Iron	230000	mg/kg	18100 U	19300 U	19400 U	29200	31900	21000 U	33500	
Lead	1200	mg/kg	298	311	338 J	808 J	674 J	327 J	333 J	
Manganese	18000	mg/kg	458 U	520 U	516 J	701 UJ	637 UJ	707 UJ	684 J	
Mercury	78	mg/kg	11.4 U	10.5 U	11.9 UJ	16.4 UJ	16.0 UJ	11.8 UJ	11.4 UJ	
Nickel	16000	mg/kg	26.5 U	25.4 U	26.2 U	32.3 U	31.4 U	26.6 U	29.3 U	
Selenium	3900	mg/kg	3.41 U	3.34 U	3.16 U	4.21 U	3.98 U	3.30 U	3.16 U	
Silver	3900	mg/kg	30.1 U	28.3 U	27.6 U	31.0 UJ	31.1 UJ	28.7 UJ	27.8 UJ	
Zinc	230000	mg/kg	3340	3450	5960 J	12200 J	11300 J	4700 J	3330 J	
Metals (USEPA SW-846 6000/7000)										
Aluminum	--	mg/kg	8550	10400	11300	9910	9990	10900	13500	
Antimony	--	mg/kg	7.36 U	6.81 U	6.59 U	6.89 U	7.05 U	7.08 U	6.32 U	
Arsenic	43	mg/kg	11.2	10.6	9.31	19.5	21.9	10.1	16.0	
Barium	55000	mg/kg	4760	3570	2170 J	8260 J	7080 J	1400 J	1650 J	
Beryllium	--	mg/kg	0.668	0.725	0.638	1.10	1.37	0.557	1.21	
Cadmium	390	mg/kg	31.7	45.3	52.7	138	93.1	47.3	23.5	
Calcium	--	mg/kg	39500	13900	9520	9530	4540	12500	11100	
Chromium	3900	mg/kg	18.3	19.5	18.0	18.5	18.2	22.6	20.4	
Cobalt	47000	mg/kg	6.55	7.42	7.61	9.38	9.71	12.8	8.30	
Copper	31000	mg/kg	63.2 J	52.1 J	62.6	146	96.7	58.4	57.8	
Iron	230000	mg/kg	14800	16300	16400	21000	24700	27700	24800	
Lead	1200	mg/kg	265	271	285	712	675	284	232	
Magnesium	--	mg/kg	11200	7590	4360	3370	2130	6270	4860	
Manganese	18000	mg/kg	516	503	537	523	599	1060	583	
Mercury	78	mg/kg	0.0946 B	0.107 B	0.0704 J	0.146 J	0.174 J	0.104 J	0.157 J	
Nickel	16000	mg/kg	15.8	20.2	17.6	18.6	20.1	20.2	22.3	
Potassium	--	mg/kg	2320	2030	2440	1830	1960	1800	2290	
Selenium	3900	mg/kg	1.23 U	1.16	1.11	1.82	1.27	1.34	1.05 U	
Silver	3900	mg/kg	1.29 B	1.04 B	1.14 B	3.13	2.50	0.969 B	0.855 B	
Sodium	--	mg/kg	125	109 B	84.5 B	87.0 B	83.3 B	129	489	
Thallium	--	mg/kg	1.23 U	1.08 B	1.10 U	1.12 B	1.18 U	1.18 U	1.05 U	
Vanadium	--	mg/kg	22.7	26.3	27.8	26.6	27.4	34.3	35.6	
Zinc	230000	mg/kg	2570	2750	4250	9980	8590	3320	2230	
Miscellaneous										
Moisture Code 086	--	%	18.5	11.9	9	12.9	14.9	15.2	5.1	
pH Code 067	--	Std. Units	6.9	7.1	6.9	6.3	6.4	6.5	7.1	

Notes:

NA - not available

DW - dry weight

TABLE 2

Summary of Composite Sample XRF and Laboratory Analytical Results

New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

Sample ID:	OU4-SS-09-COMP2(1-6)	OU4-SS-09-COMP3(6-12)	OU4-SS-09-COMP4(1-6)	OU4-SS-09-COMP5(1-6)	OU4-SS-10-COMP1(0-1)	OU4-SS-10-COMP2(1-6)	OU4-SS-11-COMP1(1-6)
Sample Depth (Inches):	1 - 6 06/08/05	6 - 12 06/08/05	1 - 6 06/09/05	1 - 6 06/09/05	0 - 1 06/09/05	1 - 6 06/09/05	1 - 6 06/09/05
Date Collected:	Residential RAL	Units					
Metals - XRF (USEPA SW-846 6200)							
Arsenic	43	mg/kg	12.6 U	15.3 J	20.4 J	19.6 J	18.9 J
Barium	55000	mg/kg	1370 J	669 J	1070 J	1660 J	1110 J
Cadmium	390	mg/kg	60.9 J	38.3 U	67.3	106	39.8
Chromium	3900	mg/kg	128 U	112 U	116 U	125 U	118 U
Cobalt	47000	mg/kg	139 U	116 U	114 U	129 U	122 U
Copper	31000	mg/kg	63.8 J	37.2 J	36.6 J	58.0 J	34.8 J
Iron	230000	mg/kg	29100	21600 U	19700 U	24700 U	23200 U
Lead	1200	mg/kg	292 J	204 J	275 J	448 J	470 J
Manganese	18000	mg/kg	560 UJ	538 UJ	615 UJ	817 UJ	939 J
Mercury	78	mg/kg	11.5 UJ	10.6 JQ	10.1 UJ	11.5 UJ	11.1 UJ
Nickel	16000	mg/kg	42.2 J	24.5 U	26.2 JQ	27.8 U	31.4 J
Selenium	3900	mg/kg	3.18 U	2.85 U	3.16 U	3.42 U	3.24 U
Silver	3900	mg/kg	28.0 UJ	26.8 UJ	27.5 UJ	28.1 UJ	27.2 UJ
Zinc	230000	mg/kg	2880 J	1780 J	3170	3700	3960
Metals (USEPA SW-846 6000/7000)							
Aluminum	--	mg/kg	11500	9120	9630	9840	6550
Antimony	--	mg/kg	6.49 U	6.45 U	6.61 U	6.80 U	6.61 U
Arsenic	43	mg/kg	24.5	11.3	14.2	16.7	13.9
Barium	55000	mg/kg	2510 J	816 J	2080 J	3280 J	1500 J
Beryllium	--	mg/kg	1.22	0.803	0.698	0.839	0.522
Cadmium	390	mg/kg	37.7	9.26	30.6	40.7	30.2
Calcium	--	mg/kg	7720	10100	7660	6470	3940
Chromium	3900	mg/kg	21.0	16.5	16.5	17.8	13.1
Cobalt	47000	mg/kg	10.9	7.08	8.38	8.33	6.20
Copper	31000	mg/kg	60.3	35.2	48.9	63.6	43.5
Iron	230000	mg/kg	24600	18400	17900	19700	16900
Lead	1200	mg/kg	306	173	270	434	400
Magnesium	--	mg/kg	2880	6190	2670	3880	1630
Manganese	18000	mg/kg	923	659	723	720	829
Mercury	78	mg/kg	0.333 J	0.139 J	0.0648 J	0.198 J	0.0933 J
Nickel	16000	mg/kg	24.9	18.4	17.2	18.2	12.9
Potassium	--	mg/kg	2210	1800	1580	1670	970
Selenium	3900	mg/kg	1.23	1.08 U	1.10 U	1.13 U	1.10 U
Silver	3900	mg/kg	0.952 B	0.538 B	0.917 B	1.23 B	0.793 B
Sodium	--	mg/kg	188	67.7 B	44.8 B	50.0 B	44.0 B
Thallium	--	mg/kg	1.08 U	1.08 U	1.10 U	1.13 U	1.10 U
Vanadium	--	mg/kg	32.8	25.7	27.3	27.6	20.1
Zinc	230000	mg/kg	2690	1550	2690	3150	2710
Miscellaneous							
Moisture Code 086	--	%	7.5	7	9.2	11.7	9.2
pH Code 067	--	Std. Units	7.1	7.2	7.4	7.2	6.4

Notes:

NA - not available

DW - dry weight

TABLE 2
Summary of Composite Sample XRF and Laboratory Analytical Results
New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

Sample ID:	OU4-SS-11-COMP2(0-1)	OU4-SS-11-COMP3(12-18)	OU4-SS-12-COMP1(0-1)	OU4-SS-12-COMP2(1-6)	OU4-SS-12-COMP3(1-6)	OU4-SS-13-COMP1(6-12)	OU4-SS-13-COMP2(6-12)
Sample Depth(Inches):	0 - 1 06/09/05	12 - 18 06/09/05	0 - 1 06/10/05	1 - 6 06/10/05	1 - 6 06/10/05	6 - 12 06/13/05	6 - 12 06/13/05
Date Collected:	Residential RAL	Units					
Metals - XRF (USEPA SW-846 6200)							
Arsenic	43	mg/kg	13.6 U	25.5 J	12.6 J	18.7 J	12.8 U
Barium	55000	mg/kg	1200 J	482	452	1650	834
Cadmium	390	mg/kg	81.5	44.3 U	38.6 U	87.0	62.6
Chromium	3900	mg/kg	124 U	143 U	110 U	124 U	117 U
Cobalt	47000	mg/kg	138 JQ	186 U	108 JQ	126 U	112 U
Copper	31000	mg/kg	62.7 J	59.9 J	22.8 J	62.2 J	48.0 J
Iron	230000	mg/kg	24900	46600	17300 U	25700	19800 U
Lead	1200	mg/kg	365 J	671 J	164 J	306 J	332 J
Manganese	18000	mg/kg	508 J	589 J	537 J	576 J	661 J
Mercury	78	mg/kg	11.5 UJ	21.9 JQ	9.23 UJ	10.8 UJ	10.7 UJ
Nickel	16000	mg/kg	26.9 UJ	34.0 U	22.6 U	27.9	24.1 U
Selenium	3900	mg/kg	3.22 U	3.98 U	2.75 U	2.90 U	3.06 U
Silver	3900	mg/kg	28.2 UJ	31.1 UJ	26.9 UJ	26.7 UJ	27.2 UJ
Zinc	230000	mg/kg	4270	3970	2020	4430	3420
Metals (USEPA SW-846 6000/7000)							
Aluminum	--	mg/kg	12100	14700	11800	6800	6010
Antimony	--	mg/kg	6.97 U	7.35 U	6.94 UJ	2.63 J	6.70 UJ
Arsenic	43	mg/kg	14.2	21.6	7.45	15.1	10.9
Barium	55000	mg/kg	2260 J	688 J	632	2000	1230
Beryllium	--	mg/kg	0.805	1.92	0.840	0.735	0.551
Cadmium	390	mg/kg	52.6	15.6	17.0	47.6	42.6
Calcium	--	mg/kg	10500	9680	7880	5760	3020
Chromium	3900	mg/kg	20.4	24.3	19.8 J	14.1 J	12.2 J
Cobalt	47000	mg/kg	8.39	8.78	6.90	5.10 B	5.01 B
Copper	31000	mg/kg	70.2	66.3	27.9 J	57.9 J	44.2 J
Iron	230000	mg/kg	22100	28400	19100	18100	17800
Lead	1200	mg/kg	346	567	147	297	313
Magnesium	--	mg/kg	5100	3260	2280	2060	1600
Manganese	18000	mg/kg	695	676	690	576	693
Mercury	78	mg/kg	0.115 J	0.312 J	0.0267 B	0.0763 B	0.0639 B
Nickel	16000	mg/kg	18.4	25.4	14.4	14.2	12.6
Potassium	--	mg/kg	2190	2450	1780	1020	799
Selenium	3900	mg/kg	1.12 B	1.31	1.16 U	1.05 U	1.12 U
Silver	3900	mg/kg	1.21 B	1.49 B	0.711 B	1.31 B	0.995 B
Sodium	--	mg/kg	161	301	279	163	142 U
Thallium	--	mg/kg	1.16 U	1.91	1.16 U	1.05 U	1.12 U
Vanadium	--	mg/kg	30.8	34.5	29.0	22.0	19.5
Zinc	230000	mg/kg	3530	2790	1650	3370	3190
Miscellaneous							
Moisture Code 086	--	%	13.9	18.4	13.5	4.7	10.5
pH Code 067	--	Std. Units	6.3	7.2	6.7	6.7	6.9

Notes:

NA - not available

DW - dry weight

TABLE 2

Summary of Composite Sample XRF and Laboratory Analytical Results

New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

Sample ID:			OU4-SS-13-COMP3(0-1)	OU4-SS-14-COMP2(0-1)	OU4-SS-14-COMP3(0-1)	OU4-SS-14-COMP4(0-1)	OU4-SS-15-COMP1(1-6)	OU4-SS-15-COMP2(0-1)	OU4-SS-15-COMP3(0-1)
Sample Depth(inches):	Date Collected:	Units	0 - 1 06/13/05	0 - 1 06/13/05	0 - 1 06/14/05	0 - 1 06/14/05	1 - 6 06/14/05	0 - 1 06/14/05	0 - 1 06/14/05
Metals - XRF (USEPA SW-846 6200)									
Arsenic	43	mg/kg	20.8 J	17.9 J	36.8 J	36.9 U	15.2 J	16.4 J	22.3 J
Barium	55000	mg/kg	707	1360 J	1820 J	2760 J	1010 J	1100 J	1070 J
Cadmium	390	mg/kg	39.5 U	86.3	76.5	76.4	59.4	83.3	99.9
Chromium	3900	mg/kg	117 U	111 U	136 U	143 U	119 U	118 U	119 U
Cobalt	47000	mg/kg	119 U	108 U	152 U	129 U	120 U	116 U	120 U
Copper	31000	mg/kg	39.8	41.0 J	54.5 J	61.2 J	44.9	54.2	62.8
Iron	230000	mg/kg	22200 U	18600 U	32800	22300 U	22800 U	21100 U	22100 U
Lead	1200	mg/kg	360	267	574	2620	304	466	426
Manganese	18000	mg/kg	601 UJ	646 J	570	702	1230 J	882 J	1020 J
Mercury	78	mg/kg	10.7 UJ	10.4 UJ	17.0 JQ	13.7 UJ	11.1 UJ	11.4 UJ	11.5 UJ
Nickel	16000	mg/kg	26.0 U	23.6 U	29.8 U	28.7 U	25.7 U	25.5 U	25.5 U
Selenium	3900	mg/kg	3.19 U	2.92 U	3.64 U	5.19 U	3.14 U	3.01 U	3.27 U
Silver	3900	mg/kg	27.6 UJ	26.3 UJ	29.1 UJ	30.6 UJ	27.4 UJ	27.2 UJ	27.7 UJ
Zinc	230000	mg/kg	2400	2580 J	4100	5140	4150	4330	4970
Metals (USEPA SW-846 6000/7000)									
Aluminum	--	mg/kg	7100	8860	9070	8580	11700	9670	10200
Antimony	--	mg/kg	23.4 J	6.40 U	6.81 U	7.19 U	6.62 U	6.55 U	6.75 U
Arsenic	43	mg/kg	7.78	16.9	15.2	12.7	14.6	10.7	11.0
Barium	55000	mg/kg	1340	2740	3840	5620	1520	1910	1880
Beryllium	--	mg/kg	0.774	0.719	1.14	0.708	0.748	0.577	0.612
Cadmium	390	mg/kg	24.9	28.6	44.7	39.3	28.5	53.3	63.6
Calcium	--	mg/kg	21100	15600	16700	24900	8700	8070	9230
Chromium	3900	mg/kg	14.7 J	17.2	16.6	16.9	18.9	18.4	16.4
Cobalt	47000	mg/kg	5.52 B	7.97	7.41	7.81	8.14	9.66	7.79
Copper	31000	mg/kg	46.1 J	40.7	59.8	63.5	46.6	52.0	66.9
Iron	230000	mg/kg	16100	35200	23000	19000	26600	17500	18000
Lead	1200	mg/kg	1890	357	434	1670	249	417	375
Magnesium	--	mg/kg	10900	8350	7810	13000	3890	3920	4450
Manganese	18000	mg/kg	486	704	558	563	1150	911	1040
Mercury	78	mg/kg	0.121	0.0638 B	0.171	0.150	0.136	0.243	0.302
Nickel	16000	mg/kg	15.2	14.5	16.1	15.5	17.3	15.7	14.5
Potassium	--	mg/kg	1270	2040	1830	1680	2120	1850	1890
Selenium	3900	mg/kg	1.18 U	1.07 U	1.54	1.20 U	1.10 U	1.09 U	1.16
Silver	3900	mg/kg	0.967 B	0.649 J	1.30 B	1.39 B	0.809 B	1.15 B	1.50 B
Sodium	--	mg/kg	288	121 J	154 J	151 J	65.8 J	80.0 J	90.4 J
Thallium	--	mg/kg	1.18 U	1.34	1.17	1.20 U	1.18	1.09 U	1.13
Vanadium	--	mg/kg	20.1	24.9	24.8	24.9	43.4	25.8	28.0
Zinc	230000	mg/kg	1830	2100 J	3110 J	3720 J	3170 J	3310 J	3580 J
Miscellaneous									
Moisture Code 086	--	%	15.1	6.3	11.9	16.6	9.3	8.4	11.1
pH Code 067	--	Std. Units	6.7	6.8	6.8	6.9	7	6.6	6.5

Notes:

NA - not available

DW - dry weight

TABLE 2
Summary of Composite Sample XRF and Laboratory Analytical Results

**New Jersey Zinc/Mobil Chemical Site
DePue, Illinois**

Sample ID:			OU4-SS-15-COMP4(0-1)	OU4-SS-16-COMP1(1-6)	OU4-SS-16-COMP2(1-6)	OU4-SS-16-COMP3(1-6)	OU4-SS-16-COMP4(12-18)	OU4-SS-16-COMP5(0-1)	OU4-SS-17-COMP1(1-6)
Sample Depth(Inches):		Units	0 - 1 06/14/05	1 - 6 06/15/05	1 - 6 06/15/05	1 - 6 06/15/05	12 - 18 06/15/05	0 - 1 06/15/05	1 - 6 06/16/05
Metals - XRF (USEPA SW-846 6200)									
Arsenic	43	mg/kg	37.7 J	25.9 J	14.2 J	16.0 J	15.0 J	31.9 U	15.7 J
Barium	55000	mg/kg	1300 J	1790 J	2030 J	1700 J	319 UJ	1390 J	2470 J
Cadmium	390	mg/kg	95.4	37.9 U	63.0	67.5	39.6 U	58.5	60.9
Chromium	3900	mg/kg	132 U	122 U	123 U	125 U	121 U	123 U	165 J
Cobalt	47000	mg/kg	132 U	125 U	109 U	175 JQ	136 U	113 U	120 U
Copper	31000	mg/kg	58.1	42.8	40.9	54.7	27.1	52.9	39.4 J
Iron	230000	mg/kg	25000 U	24200	18300 U	24300	28400	17700 U	20400 U
Lead	1200	mg/kg	924	582	351	469	323	2120	473 J
Manganese	18000	mg/kg	853 J	663 J	504 J	640 J	751 J	345 UJ	627 UJ
Mercury	78	mg/kg	12.8 UJ	11.0 UJ	10.6 UJ	11.5 UJ	21.2 JQ	12.5 UJ	10.8 UJ
Nickel	16000	mg/kg	28.5 U	24.9 U	24.3 U	26.6 U	27.4 U	24.8 U	25.7 U
Selenium	3900	mg/kg	4.05 U	3.26 U	3.02 U	3.19 U	3.16 U	4.55 U	3.41 U
Silver	3900	mg/kg	28.9 UJ	26.6 UJ	27.3 UJ	27.7 UJ	27.7 UJ	29.0 UJ	28.2 U
Zinc	230000	mg/kg	6490	2650	2930	3170	719	2840	2950
Metals (USEPA SW-846 6000/7000)									
Aluminum	--	mg/kg	10700	11000	10200	11400	12900	8450	10300
Antimony	--	mg/kg	6.97 U	6.18 U	6.43 U	6.51 U	6.74 U	7.24 U	6.63 U
Arsenic	43	mg/kg	11.9	13.3	11.8	14.9	10.6	13.1	12.4
Barium	55000	mg/kg	2550	3360	3960	3820	219	3100	4890
Beryllium	--	mg/kg	0.585	0.770	0.713	0.976	1.52	0.548	0.733
Cadmium	390	mg/kg	57.9	24.2	33.1	46.5	2.86	38.0	23.7
Calcium	--	mg/kg	16900	5820	6660	6050	4120	15900	29300
Chromium	3900	mg/kg	33.5	18.6	15.7	18.3	19.4	19.3	22.7
Cobalt	47000	mg/kg	9.16	8.10	7.23	9.08	9.17	7.69	7.84
Copper	31000	mg/kg	110	46.7	50.5	60.3	25.0	75.5	46.8
Iron	230000	mg/kg	21600	20100	15900	25300	22200	17300	17000
Lead	1200	mg/kg	1350	558	323	438	226	2420	391
Magnesium	--	mg/kg	6550	3610	3840	3010	2240	8870	14800
Manganese	18000	mg/kg	820	631	528	768	861	651	589
Mercury	78	mg/kg	0.370	0.216	0.162	0.297	0.485	0.137	0.275
Nickel	16000	mg/kg	17.4	17.5	14.1	17.1	21.0	12.6	17.4
Potassium	--	mg/kg	2020	2080	1990	2420	2450	1450	2570
Selenium	3900	mg/kg	1.27	1.09	1.07 U	1.58	1.12 U	1.18 B	1.10 U
Silver	3900	mg/kg	1.07 B	1.11 B	1.36 B	1.27 B	2.25 U	1.25 B	0.896 B
Sodium	--	mg/kg	207 J	69.6 J	81.5 J	93.2 J	178 J	123 J	85.6 J
Thallium	--	mg/kg	1.16 U	1.03 U	1.07 U	1.37	1.12 U	1.21 U	1.10 U
Vanadium	--	mg/kg	27.9	29.1	24.3	29.1	30.8	24.7	24.4
Zinc	230000	mg/kg	5530 J	2150 J	2480 J	3160 J	567 J	2400 J	2160 J
Miscellaneous									
Moisture Code 086	--	%	13.9	2.9	6.7	7.8	11	17.1	9.5
pH Code 067	--	Std. Units	6.7	7	6.7	6.4	6.8	6.5	7.2

Notes:

NA - not available

DW - dry weight

TABLE 2

Summary of Composite Sample XRF and Laboratory Analytical Results

New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

Sample ID:			OU4-SS-17-COMP2(1-6)
Sample Depth (Inches):			1 - 6
Date Collected:	Residential RAL	Units	06/16/05
Metals - XRF (USEPA SW-846 6200)			
Arsenic	43	mg/kg	25.6 J
Barium	55000	mg/kg	1150 J
Cadmium	390	mg/kg	58.4
Chromium	3900	mg/kg	121 U
Cobalt	47000	mg/kg	126 U
Copper	31000	mg/kg	37.6 J
Iron	230000	mg/kg	24600
Lead	1200	mg/kg	375 J
Manganese	18000	mg/kg	585 UJ
Mercury	78	mg/kg	10.4 UJ
Nickel	16000	mg/kg	25.9 U
Selenium	3900	mg/kg	3.00 U
Silver	3900	mg/kg	27.1 U
Zinc	230000	mg/kg	2810
Metals (USEPA SW-846 6000/7000)			
Aluminum	--	mg/kg	8930
Antimony	--	mg/kg	6.38 U
Arsenic	43	mg/kg	16.1
Barium	55000	mg/kg	1830
Beryllium	--	mg/kg	0.816
Cadmium	390	mg/kg	19.8
Calcium	--	mg/kg	19000
Chromium	3900	mg/kg	20.0
Cobalt	47000	mg/kg	6.86
Copper	31000	mg/kg	47.0
Iron	230000	mg/kg	19200
Lead	1200	mg/kg	269
Magnesium	--	mg/kg	9800
Manganese	18000	mg/kg	542
Mercury	78	mg/kg	0.101 B
Nickel	16000	mg/kg	20.2
Potassium	--	mg/kg	1800
Selenium	3900	mg/kg	1.06 U
Silver	3900	mg/kg	0.648 B
Sodium	--	mg/kg	94.1 J
Thallium	--	mg/kg	1.06 U
Vanadium	--	mg/kg	23.4
Zinc	230000	mg/kg	2030 J
Miscellaneous			
Moisture Code 086	--	%	6
pH Code 067	--	Std. Units	7.4

Notes:

NA - not available

DW - dry weight

TABLE 3

Summary of Discrete Sample XRF and Laboratory Analytical Results

New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

Sample ID: Sample Depth (Inches): Date Collected:	Residential RAL	Units (as DW)	OU4-SS-01-08(1-6) 1 - 6 06/01/05	OU4-SS-01-11(6-12) 6 - 12 06/01/05	OU4-SS-01-16(12-18) 12 - 18 06/01/05	OU4-SS-03-13(12-18) 12 - 18 06/02/05	OU4-SS-03-18(0-1) 0 - 1 06/02/05	OU4-SS-05-09(1-6) 1 - 6 06/06/05	OU4-SS-05-09(6-12) 6 - 12 06/06/05
Metals - XRF (USEPA SW-846 6200)									
Arsenic	43	mg/kg	65.3	69.0	74.5	69.2 J	54.2 J	169 J	85.4 J
Barium	55000	mg/kg	NA	NA	NA	NA	NA	NA	NA
Cadmium	390	mg/kg	NA	NA	NA	NA	NA	NA	NA
Chromium	3900	mg/kg	NA	NA	NA	NA	NA	NA	NA
Cobalt	47000	mg/kg	NA	NA	NA	NA	NA	NA	NA
Copper	31000	mg/kg	NA	NA	NA	NA	NA	NA	NA
Iron	230000	mg/kg	NA	NA	NA	NA	NA	NA	NA
Lead	1200	mg/kg	NA	NA	NA	NA	NA	NA	NA
Manganese	18000	mg/kg	NA	NA	NA	NA	NA	NA	NA
Mercury	78	mg/kg	NA	NA	NA	NA	NA	NA	NA
Nickel	16000	mg/kg	NA	NA	NA	NA	NA	NA	NA
Selenium	3900	mg/kg	NA	NA	NA	NA	NA	NA	NA
Silver	3900	mg/kg	NA	NA	NA	NA	NA	NA	NA
Zinc	230000	mg/kg	NA	NA	NA	NA	NA	NA	NA
Metals (USEPA SW-846 6000/7000)									
Aluminum	--	mg/kg	10700	NA	NA	NA	NA	9620	NA
Antimony	--	mg/kg	6.72 U	NA	NA	NA	NA	6.68 U	NA
Arsenic	43	mg/kg	38.7	50.8 [47.6 J]	40.4 [35.0 J]	43.4 [50.5 J]	9.02 [8.38 J]	111	55.7 [66.1 J]
Barium	55000	mg/kg	3040	NA	NA	NA	NA	2650	NA
Beryllium	--	mg/kg	1.13	NA	NA	NA	NA	0.587	NA
Cadmium	390	mg/kg	25.4	NA	NA	NA	NA	17.9	NA
Calcium	--	mg/kg	4080	NA	NA	NA	NA	19000	NA
Chromium	3900	mg/kg	16.6	NA	NA	NA	NA	90.4	NA
Cobalt	47000	mg/kg	4.91 J	NA	NA	NA	NA	4.45 J	NA
Copper	31000	mg/kg	32.0 J	NA	NA	NA	NA	93.8 J	NA
Iron	230000	mg/kg	23000	NA	NA	NA	NA	17700	NA
Lead	1200	mg/kg	291	NA	NA	NA	NA	532	NA
Magnesium	--	mg/kg	2370	NA	NA	NA	NA	5930	NA
Manganese	18000	mg/kg	462	NA	NA	NA	NA	469	NA
Mercury	78	mg/kg	0.0850 J	NA	NA	NA	NA	0.174	NA
Nickel	16000	mg/kg	16.2	NA	NA	NA	NA	18.4	NA
Potassium	--	mg/kg	2050	NA	NA	NA	NA	1970	NA
Selenium	3900	mg/kg	1.12 U	NA	NA	NA	NA	1.11 U	NA
Silver	3900	mg/kg	0.839 J	NA	NA	NA	NA	0.723 J	NA
Sodium	--	mg/kg	201 J	NA	NA	NA	NA	250 J	NA
Thallium	--	mg/kg	1.12 U	NA	NA	NA	NA	1.17	NA
Vanadium	--	mg/kg	23.7	NA	NA	NA	NA	23.1	NA
Zinc	230000	mg/kg	1880	NA	NA	NA	NA	1780	NA
Miscellaneous									
Moisture Code 086	--	%	10.7	8.3 [6.8]	6.2 [6.3]	13.9 [13.6]	16.9 [17.4]	10.2	7.8 [7]
pH Code 067	--	Std. Units	6.2	7.7 [7.7]	8.1 [8]	7.4 [7.3]	5.7 [5.4]	7.2	7.9 [7.6]

Notes:

NA - not available

DW - dry weight

TABLE 3
Summary of Discrete Sample XRF and Laboratory Analytical Results
New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

Sample ID: Sample Depth(Inches): Date Collected:	Residential RAL	Units (as DW)	OU4-SS-05-15(1-6) 1 - 6 06/21/05	OU4-SS-05-15(6-12) 6 - 12 06/21/05	OU4-SS-05-15(12-18) 12 - 18 06/21/05	OU4-SS-06-22(6-12) 6 - 12 06/07/05	OU4-SS-08-12(1-6) 1 - 6 06/23/05	OU4-SS-09-05(1-6) 1 - 6 06/08/05	OU4-SS-09-07(0-1) 0 - 1 06/08/05
Metals - XRF (USEPA SW-846 6200)									
Arsenic	43	mg/kg	20.0 J	9.91 U	10.2 J	66.7	69.0 J	54.6	50.5
Barium	55000	mg/kg	NA	NA	NA	NA	NA	NA	NA
Cadmium	390	mg/kg	NA	NA	NA	NA	287	NA	NA
Chromium	3900	mg/kg	NA	NA	NA	NA	NA	NA	NA
Cobalt	47000	mg/kg	NA	NA	NA	NA	NA	NA	NA
Copper	31000	mg/kg	NA	NA	NA	NA	NA	NA	NA
Iron	230000	mg/kg	NA	NA	NA	NA	NA	NA	NA
Lead	1200	mg/kg	NA	NA	NA	NA	NA	NA	NA
Manganese	18000	mg/kg	NA	NA	NA	NA	NA	NA	NA
Mercury	78	mg/kg	NA	NA	NA	NA	NA	NA	NA
Nickel	16000	mg/kg	NA	NA	NA	NA	NA	NA	NA
Selenium	3900	mg/kg	NA	NA	NA	NA	NA	NA	NA
Silver	3900	mg/kg	NA	NA	NA	NA	NA	NA	NA
Zinc	230000	mg/kg	NA	NA	NA	NA	NA	NA	NA
Metals (USEPA SW-846 6000/7000)									
Aluminum	--	mg/kg	8240	11900	9430	NA	NA	10800	NA
Antimony	--	mg/kg	7.43 UJ	7.00 UJ	6.77 UJ	NA	NA	6.60 U	NA
Arsenic	43	mg/kg	12.4	12.5	10.5	28.0 [24.7 J]	29.6	31.6	25.8
Barium	55000	mg/kg	4530	1300	359	NA	NA	2490	NA
Beryllium	--	mg/kg	0.505	2.24	0.775	NA	NA	1.07	NA
Cadmium	390	mg/kg	17.1	8.89	3.75	NA	NA	23.0	NA
Calcium	--	mg/kg	25400	10400	2960	NA	NA	11300	NA
Chromium	3900	mg/kg	20.4 J	19.1 J	18.4 J	NA	NA	17.4	NA
Cobalt	47000	mg/kg	2.35 J	8.45	6.73	NA	NA	7.12	NA
Copper	31000	mg/kg	33.6	27.1	19.2	NA	NA	121 J	NA
Iron	230000	mg/kg	14200	27300	29700	NA	NA	27800	NA
Lead	1200	mg/kg	253	214	67.0	NA	NA	609	NA
Magnesium	--	mg/kg	8730	4870	2920	NA	NA	4100	NA
Manganese	18000	mg/kg	403	576	631	NA	NA	893	NA
Mercury	78	mg/kg	0.111 J	0.194 J	0.155 J	NA	NA	0.456	NA
Nickel	16000	mg/kg	13.6	26.8	16.5	NA	NA	19.4	NA
Potassium	--	mg/kg	1790	1780	1530	NA	NA	2210	NA
Selenium	3900	mg/kg	1.24 U	1.17 U	1.13 U	NA	NA	1.10 U	NA
Silver	3900	mg/kg	0.700 J	0.666 J	0.404 J	NA	NA	2.95	NA
Sodium	--	mg/kg	325	411	138	NA	NA	256 J	NA
Thallium	--	mg/kg	1.18 J	1.52	1.38	NA	NA	1.52	NA
Vanadium	--	mg/kg	20.2	26.9	32.8	NA	NA	25.6	NA
Zinc	230000	mg/kg	1380	1320	468	NA	NA	4750	NA
Miscellaneous									
Moisture Code 086	--	%	19.3	14.3	11.4	17.7 [16.8]	17.9	9.1	9.7
pH Code 067	--	Std. Units	6.8	7	7.5	6.9 [6.6]	6.5	7.2	7.5

Notes:

NA - not available

DW - dry weight

TABLE 3

Summary of Discrete Sample XRF and Laboratory Analytical Results

New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

Sample ID: Sample Depth(inches): Date Collected:	Residential RAL	Units (as DW)	OU4-SS-09-07(1-6) 1 - 6 06/08/05	OU4-SS-10-10(1-6) 1 - 6 06/09/05	OU4-SS-11-01(12-18) 12 - 18 06/09/05	OU4-SS-11-02(12-18) 12 - 18 06/09/05	OU4-SS-11-12(12-18) 12 - 18 06/09/05	OU4-SS-13-03(6-12) 6 - 12 06/24/05	OU4-SS-14-12(1-6) 1 - 6 06/23/05
Metals - XRF (USEPA SW-846 6200)									
Arsenic	43	mg/kg	69.2	12.1 U	75.3	96.5	75.8	67.5 J	47.1 J
Barium	55000	mg/kg	NA	278 UJ	NA	NA	NA	NA	NA
Cadmium	390	mg/kg	NA	39.0 U	NA	NA	NA	NA	NA
Chromium	3900	mg/kg	NA	107 U	NA	NA	NA	NA	NA
Cobalt	47000	mg/kg	NA	105 U	NA	NA	NA	NA	NA
Copper	31000	mg/kg	NA	48.1 J	NA	NA	NA	NA	NA
Iron	230000	mg/kg	NA	17200 U	NA	NA	NA	NA	NA
Lead	1200	mg/kg	NA	292	NA	NA	NA	NA	NA
Manganese	18000	mg/kg	NA	533 UJ	NA	NA	NA	NA	NA
Mercury	78	mg/kg	NA	9.06 UJ	NA	NA	NA	92.7 J	NA
Nickel	16000	mg/kg	NA	22.9 U	NA	NA	NA	NA	NA
Selenium	3900	mg/kg	NA	3.02 U	NA	NA	NA	NA	NA
Silver	3900	mg/kg	NA	27.2 UJ	NA	NA	NA	NA	NA
Zinc	230000	mg/kg	NA	954	NA	NA	NA	NA	NA
Metals (USEPA SW-846 6000/7000)									
Aluminum	--	mg/kg	NA	10500	NA	NA	NA	12800	8770 [9530]
Antimony	--	mg/kg	NA	6.79 U	NA	NA	NA	1.15 J	1.03 J [1.44 J]
Arsenic	43	mg/kg	40.7	7.81	17.0	23.3	43.7	37.7	28.9 [29.4]
Barium	55000	mg/kg	NA	589 J	NA	NA	NA	2000	4510 [4280]
Beryllium	--	mg/kg	NA	0.613	NA	NA	NA	4.78	2.28 [2.22]
Cadmium	390	mg/kg	NA	8.26	NA	NA	NA	18.6	30.6 [27.6]
Calcium	--	mg/kg	NA	14700	NA	NA	NA	14500	19300 J [19700 J]
Chromium	3900	mg/kg	NA	27.1	NA	NA	NA	20.3	15.9 J [16.6 J]
Cobalt	47000	mg/kg	NA	7.25	NA	NA	NA	11.3 J	14.6 [8.66]
Copper	31000	mg/kg	NA	53.4	NA	NA	NA	55.1 J	77.1 J [138 J]
Iron	230000	mg/kg	NA	18100	NA	NA	NA	43800	28900 [29800]
Lead	1200	mg/kg	NA	254	NA	NA	NA	451	517 [469]
Magnesium	--	mg/kg	NA	6640	NA	NA	NA	2820	8170 [8300]
Manganese	18000	mg/kg	NA	569	NA	NA	NA	725	1370 [626]
Mercury	78	mg/kg	NA	0.177 J	NA	NA	NA	0.383	0.214 [0.223]
Nickel	16000	mg/kg	NA	19.9	NA	NA	NA	34.8 J	32.8 [22.8]
Potassium	--	mg/kg	NA	1880	NA	NA	NA	2080	1600 J [1650 J]
Selenium	3900	mg/kg	NA	1.13 U	NA	NA	NA	1.13 U	1.09 U [1.10 U]
Silver	3900	mg/kg	NA	0.603 B	NA	NA	NA	0.579 J	1.28 J [1.09 J]
Sodium	--	mg/kg	NA	103 B	NA	NA	NA	1080	201 [274]
Thallium	--	mg/kg	NA	1.13 U	NA	NA	NA	1.13 U	2.22 [1.86]
Vanadium	--	mg/kg	NA	25.8	NA	NA	NA	36.0	24.9 [27.8]
Zinc	230000	mg/kg	NA	671	NA	NA	NA	2300	3470 [3140]
Miscellaneous									
Moisture Code 086	--	%	6.9	11.6	16.5	9.6	21.3	11.2	8.4 [8.8]
pH Code 067	--	Std. Units	7.7	7.1	7.6	7.6	7.7	7.5	7 [7.2]

Notes:

NA - not available

DW - dry weight

TABLE 3

Summary of Discrete Sample XRF and Laboratory Analytical Results

New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

Sample ID: Sample Depth(inches): Date Collected:	Residential RAL	Units (as DW)	OU4-SS-14-17(6-12) 6 - 12 06/13/05	OU4-SS-14-18(1-6) 1 - 6 06/23/05	OU4-SS-14-19(0-1) 0 - 1 06/23/05	OU4-SS-14-20(0-1) 0 - 1 06/23/05	OU4-SS-15-08(0-1) 0 - 1 06/23/05	OU4-SS-15-17(1-6) 1 - 6 06/23/05
Metals - XRF (USEPA SW-846 6200)								
Arsenic	43	mg/kg	14.9 J	71.9 J	54.8 J	64.3 J	65.0 J	85.3 J
Barium	55000	mg/kg	1160 J	NA	NA	NA	NA	NA
Cadmium	390	mg/kg	38.0 U	NA	NA	NA	NA	NA
Chromium	3900	mg/kg	113 U	NA	NA	NA	NA	NA
Cobalt	47000	mg/kg	106 U	NA	NA	NA	NA	NA
Copper	31000	mg/kg	18.4 J	NA	NA	NA	NA	NA
Iron	230000	mg/kg	17900 U	NA	NA	NA	NA	NA
Lead	1200	mg/kg	166	NA	NA	NA	NA	NA
Manganese	18000	mg/kg	441 U	NA	NA	NA	NA	NA
Mercury	78	mg/kg	11.3 JQ	NA	NA	NA	NA	NA
Nickel	16000	mg/kg	25.9 JQ	NA	NA	NA	NA	NA
Selenium	3900	mg/kg	2.72 U	NA	NA	NA	NA	NA
Silver	3900	mg/kg	26.7 U	NA	NA	NA	NA	NA
Zinc	230000	mg/kg	1610	NA	NA	NA	NA	NA
Metals (USEPA SW-846 6000/7000)								
Aluminum	--	mg/kg	9990	NA	NA	NA	NA	NA
Antimony	--	mg/kg	6.47 U	NA	NA	NA	NA	NA
Arsenic	43	mg/kg	18.2	15.7	20.7	14.5	12.5	19.3
Barium	55000	mg/kg	2140	NA	NA	NA	NA	NA
Beryllium	--	mg/kg	0.743	NA	NA	NA	NA	NA
Cadmium	390	mg/kg	17.2	NA	NA	NA	NA	NA
Calcium	--	mg/kg	13700	NA	NA	NA	NA	NA
Chromium	3900	mg/kg	16.8	NA	NA	NA	NA	NA
Cobalt	47000	mg/kg	9.01	NA	NA	NA	NA	NA
Copper	31000	mg/kg	33.0	NA	NA	NA	NA	NA
Iron	230000	mg/kg	16900	NA	NA	NA	NA	NA
Lead	1200	mg/kg	146	NA	NA	NA	NA	NA
Magnesium	--	mg/kg	6990	NA	NA	NA	NA	NA
Manganese	18000	mg/kg	844	NA	NA	NA	NA	NA
Mercury	78	mg/kg	0.0484 B	NA	NA	NA	NA	NA
Nickel	16000	mg/kg	17.6	NA	NA	NA	NA	NA
Potassium	--	mg/kg	2280	NA	NA	NA	NA	NA
Selenium	3900	mg/kg	1.08 U	NA	NA	NA	NA	NA
Silver	3900	mg/kg	2.16 U	NA	NA	NA	NA	NA
Sodium	--	mg/kg	155 J	NA	NA	NA	NA	NA
Thallium	--	mg/kg	1.05 J	NA	NA	NA	NA	NA
Vanadium	--	mg/kg	27.1	NA	NA	NA	NA	NA
Zinc	230000	mg/kg	1570 J	NA	NA	NA	NA	NA
Miscellaneous								
Moisture Code 086	--	%	7.2	12.6	19.2 [19.2]	14.3 [14.3]	9.9 [9.9]	14.1
pH Code 067	--	Std. Units	7.8	6.9	6.6 [6.7]	6.4 [6.5]	6.6 [6.6]	7.1

Notes:

NA - not available

DW - dry weight

TABLE 3
Summary of Discrete Sample XRF and Laboratory Analytical Results

**New Jersey Zinc/Mobil Chemical Site
DePue, Illinois**

Sample ID:		Units	OU4-SS-16-15(6-12)	OU4-SS-16-16(6-12)	OU4-SS-16-16(12-18)	OU4-SS-16-17(1-6)	OU4-SS-16-21(0-1)	OU4-SS-17-10(12-18)
Sample Depth(Inches):			6 - 12 06/23/05	6 - 12 06/23/05	12 - 18 06/24/05	1 - 6 06/23/05	0 - 1 06/23/05	12 - 18 06/23/05
Date Collected:	Residential RAL	(as DW)						
Metals - XRF (USEPA SW-846 6200)								
Arsenic	43	mg/kg	55.5 J	56.3	36.4 U	75.9 J	160 J	88.2 J
Barium	55000	mg/kg	NA	NA	NA	NA	NA	NA
Cadmium	390	mg/kg	NA	NA	NA	NA	NA	NA
Chromium	3900	mg/kg	NA	NA	NA	NA	NA	NA
Cobalt	47000	mg/kg	NA	NA	NA	NA	NA	NA
Copper	31000	mg/kg	NA	NA	NA	NA	NA	NA
Iron	230000	mg/kg	NA	NA	NA	NA	NA	NA
Lead	1200	mg/kg	NA	NA	NA	NA	NA	NA
Manganese	18000	mg/kg	NA	NA	NA	NA	NA	NA
Mercury	78	mg/kg	NA	NA	152 J	NA	NA	NA
Nickel	16000	mg/kg	NA	NA	NA	NA	NA	NA
Selenium	3900	mg/kg	NA	NA	NA	NA	NA	NA
Silver	3900	mg/kg	NA	NA	NA	NA	NA	NA
Zinc	230000	mg/kg	NA	NA	NA	NA	NA	NA
Metals (USEPA SW-846 6000/7000)								
Aluminum	--	mg/kg	NA	NA	NA	11700	NA	NA
Antimony	--	mg/kg	NA	NA	NA	6.44 U	NA	NA
Arsenic	43	mg/kg	29.9 [31.1]	42.1	NA	41.5	18.6	78.5 J
Barium	55000	mg/kg	NA	NA	NA	1640	NA	NA
Beryllium	--	mg/kg	NA	NA	NA	1.80	NA	NA
Cadmium	390	mg/kg	NA	NA	NA	29.3	NA	NA
Calcium	--	mg/kg	NA	NA	NA	21000	NA	NA
Chromium	3900	mg/kg	NA	NA	NA	19.1	NA	NA
Cobalt	47000	mg/kg	NA	NA	NA	9.63	NA	NA
Copper	31000	mg/kg	NA	NA	NA	63.5	NA	NA
Iron	230000	mg/kg	NA	NA	NA	30100	NA	NA
Lead	1200	mg/kg	NA	NA	NA	453	NA	NA
Magnesium	--	mg/kg	NA	NA	NA	6810	NA	NA
Manganese	18000	mg/kg	NA	NA	NA	684	NA	NA
Mercury	78	mg/kg	NA	NA	1.88	0.266	NA	NA
Nickel	16000	mg/kg	NA	NA	NA	25.7 J	NA	NA
Potassium	--	mg/kg	NA	NA	NA	2480	NA	NA
Selenium	3900	mg/kg	NA	NA	NA	1.07 U	NA	NA
Silver	3900	mg/kg	NA	NA	NA	1.74 J	NA	NA
Sodium	--	mg/kg	NA	NA	NA	123 U	NA	NA
Thallium	--	mg/kg	NA	NA	NA	1.26	NA	NA
Vanadium	--	mg/kg	NA	NA	NA	29.6	NA	NA
Zinc	230000	mg/kg	NA	NA	NA	2430 J	NA	NA
Miscellaneous								
Moisture Code 086	--	%	9.2 [10.8]	14.6	20.1	6.9	24.9	13.7
pH Code 067	--	Std. Units	6.4 [6.5]	6.8	6.8	7.3	6.6	7.3

Notes:

NA - not available

DW - dry weight

TABLE 4
Data Screening Summary for Soils
New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

Constituent	RAL Screening Value	XRF		Laboratory	
		Maximum Concentration	# Exceeding RAL	Maximum Concentration	# Exceeding RAL
Composite Samples					
Arsenic	43	47.4	2/280	26.8	0/106
Barium	55,000	4,946	0/280	8,260	0/62
Cadmium	390	150	0/280	138	0/63
Chromium	3,900	207	0/280	33.5	0/62
Cobalt	47,000	256	0/242	12.8	0/62
Copper	31,000	142	0/280	146	0/62
Iron	230,000	56,877	0/280	35,200	0/62
Lead	1,200	2,620	2/280	2,420	4/62
Manganese	18,000	1,304	0/280	1,760	0/61
Mercury	78	24.4	0/280	0.485	0/62
Nickel	16,000	42.2	0/280	25.4	0/62
Selenium	3,900	2.60	0/280	2.68	0/62
Silver	3,900	16.0	0/280	3.13	0/62
Zinc	230,000	12,189	0/280	9,980	0/62
Discrete Samples					
Arsenic	43	169	27/913	114	6/29
Barium	55,000	2,014	0/16	4,395	0/8
Cadmium	390	287	0/70	29.1	0/8
Chromium	3,900	58.5	0/16	87.15	0/8
Cobalt	47,000	66.8	0/16	11.63	0/8
Copper	31,000	48.1	0/16	121	0/8
Iron	230,000	91,383	0/20	43,800	0/8
Lead	1,200	292	0/16	609	0/8
Manganese	18,000	784	0/16	998	0/8
Mercury	78	152	2/31	1.88	0/8
Nickel	16,000	35.7	0/16	34.8	0/8
Selenium	3,900	1.51	0/16	0.565	0/8
Silver	3,900	13.6	0/16	2.95	0/8
Zinc	230,000	2,468	0/16	4,750	0/8

Notes:

- 1.) All criteria and maximum concentration values are in units of mg/kg.
- 2.) Includes all composite and discrete sample results.
- 3.) All duplicates were averaged with their corresponding parent sample.
- 4.) Non-detects are presented as half the detection limit for this comparison.

TABLE 5
Relative Standard Deviation for XRF Soils Data
New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

Constituent	Range		Average
Composites			
Arsenic	2.53	-	27.99
Barium	3.70	-	24.21
Cadmium	8.58	-	23.98
Chromium*	0.95	-	13.76
Cobalt*	0.50	-	15.22
Copper	3.53	-	25.65
Iron	0.73	-	6.81
Lead	2.05	-	11.07
Manganese	3.62	-	27.82
Mercury**	2.10	-	11.96
Nickel*	1.10	-	12.95
Selenium*	1.17	-	4.73
Silver*	0.28	-	9.84
Zinc	1.57	-	10.11
Discretes			
Arsenic	12.66	-	64.68
			35.33

Notes:

1.) Relative standard deviation is calculated using the following formula:

$$\text{RSD} = (\text{SD}/\text{Mean Concentration}) \times 100$$

where:

SD = standard deviation of the concentration for the analyte

Mean Concentration = mean concentration for the analyte

* Values are biased low as calculations are based upon the full detection limits.

** Values are biased low as calculations are based upon the full detection limits, except for one composite sample (OU4-SS-11-COMP3(12-18)) where concentrations were detected at levels higher than the sample detection limit.

TABLE 6a

Summary of Regression Analysis Between Laboratory and XRF Soils Data - Dry Weight

New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

Constituent	R ²	Slope	Y-Intercept
Arsenic	0.60	0.65	0.26
Barium	0.87	1.22	-0.48
Cadmium	0.60	1.35	-0.93
Chromium*	0.89	1.30	-1.40
Cobalt*	0.29	0.47	-0.16
Copper	0.68	0.77	0.41
Iron	0.52	0.54	1.90
Lead	0.81	1.13	-0.34
Manganese	0.70	0.97	0.10
Mercury	0.71	1.00	-2.10
Nickel*	0.37	0.76	0.10
Selenium*	NA	NA	NA
Silver*	NA	NA	NA
Zinc	0.94	1.02	-0.17

Notes:

- 1.) All constituents are log-transformed and plotted on a linear scale.
 - 2.) Values based on dry weight analysis results.
 - 3.) R² = coefficient of determination, which explains the proportion of observed y variation given by the simple linear regression model ($y = ax + b$).
- NA = Not applicable as the constituents do not have detected data pairs within the lab and XRF results.
- *Low sample sizes.

TABLE 6b

Summary of Regression Analysis Between Laboratory and XRF Soils Data - Wet Weight

New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

Constituent	R ²	Slope	Y-Intercept
Arsenic	0.61	0.67	0.26
Barium	0.85	1.190	-0.34
Cadmium	0.58	1.380	-0.93
Chromium*	0.88	1.200	-1.20
Cobalt*	0.23	0.400	0.03
Copper	0.65	0.76	0.46
Iron	0.47	0.53	2.00
Lead	0.82	1.12	-0.37
Manganese	0.65	0.95	0.21
Mercury	0.69	1.1	-2.10
Nickel*	0.36	0.76	0.13
Selenium*	NA	NA	NA
Silver*	NA	NA	NA
Zinc	0.94	1.01	-0.12

Notes:

- 1.) All constituents are log-transformed and plotted on a linear scale.
 - 2.) Values based on dry weight analysis results.
 - 3.) R² = coefficient of determination, which explains the proportion of observed y variation given by the simple linear regression model ($y = ax + b$).
- NA = Not applicable as the constituents do not have detected data pairs within the lab and XRF results.
- *Low sample sizes.

TABLE 7
 Comparison of Laboratory and XRF Soils Data
 New Jersey Zinc/ Mobil Chemical Site
 DePue, Illinois

Constituent	Inferential Statistical Analysis							
	Number of Samples	Distribution/ Method ²	p-value ³	Significantly Different ?	Number of Samples	Test Method	p-value ³	Significantly Different ?
Barium (Dry)	59	Wilcoxon Signed Rank Test	<0.001	Yes	58	Two sample paired t-test (parametric)	<0.001	Yes
Barium (Wet)	61	Wilcoxon Signed Rank Test	<0.001	Yes	58	Two sample paired t-test (parametric)	<0.001	Yes
Zinc (Dry)	64	Wilcoxon Signed Rank Test	<0.001	Yes	64	Two sample paired t-test (parametric)	<0.001	Yes
Zinc (Wet)	64	Wilcoxon Signed Rank Test	<0.001	Yes	64	Two sample paired t-test (parametric)	<0.001	Yes

Notes:

- 1.) XRF and laboratory data were compared using all paired analytical data for all depth intervals.
- 2.) Data was tested to determine if the data sets are statistically similar using the Wilcoxon signed rank test and the paired t-test.
- 3.) p-value <0.05 = different; p-value 0.05 = similar

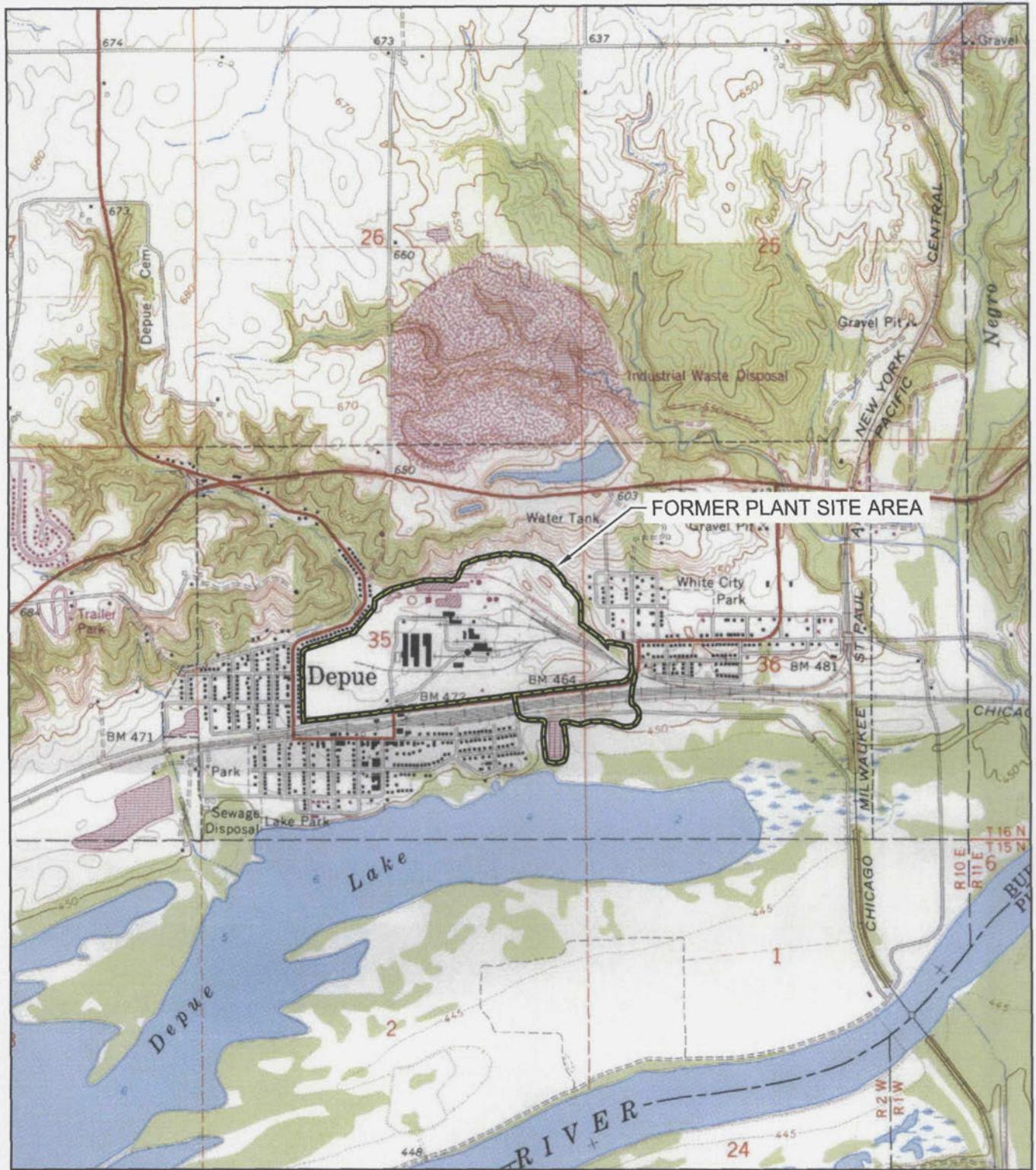
TABLE 8
Summary of False Negatives Between Laboratory and XRF Soils Data
New Jersey Zinc/Mobil Chemical Site
DePue, Illinois

Constituent	Number of Paired Samples	Number of False Negatives	Percent False Negatives
Arsenic	120	5	4.2
Barium	58	52	90
Cadmium	44	0	0
Chromium*	6	NA	NA
Cobalt*	6	NA	NA
Copper	63	35	56
Iron	26	1	3.8
Lead	64	9	14
Manganese	32	16	50
Mercury	11	0	0
Nickel*	5	NA	NA
Selenium**	0	NA	NA
Silver**	0	NA	NA
Zinc	64	2	3.1

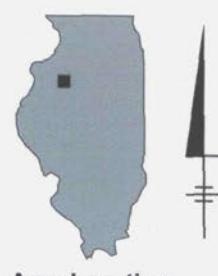
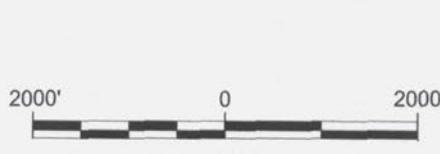
Notes:

- 1.) Percent false negatives are based on qualified data for detected matched pairs.
 - 2.) Values for both laboratory and XRF data are based on dry weight analysis results.
 - 3.) Percent false negatives occur for instances where XRF analysis underpredicts the laboratory analysis.
- * Percent false negatives are not applicable due to limited sample size (<10)
- ** Percent false negatives could not be calculated as matched pairs do not exist.

Figures



REFERENCE: Base Map Source: USGS 7.5 Minute Quad. Series "Depue, Illinois" (1966, Photorevised 1979).



DRAWING SOURCE: REMOVAL ACTION LIMIT ASSESSMENT REPORT FIG.1 SITE LOCATION MAP, DRAFTED BY BBL, DATED 09/09/05.

ENVIRON

SITE LOCATION MAP
REMOVAL ACTION LIMIT ASSESSMENT REPORT
DEPUE SITE
DEPUE, ILLINOIS

DATE:
05/10/10

CONTRACT NUMBER:
21-12046C

DRAFTER:
APR

APPROVED:
REVISED:

FIGURE
1

Appendix A
RAL Assessment Field Changes
and Clarifications



FIELD CHANGE REQUEST # 1

BBL Project #: 855.38.002

Affected Document: Removal Action Limit Assessment Work Plan, May 2005 DePue Site - OV4

Requested Change:

Modification to the Sample Designation System that will facilitate sample tracking. Eliminate the letter designation for composite/discrete samples to give every location and depth its own identifier.

ex./ OV4-SS-01-04 (0-1") from OV4-SS-01-04a(0-1")-Discret
ex./ OV4-SS-01-COMP1 (0-1") from OV4-SS-01-01-(0-1")-Compos

Reason for Change:

More efficient sample tracking scheme for each sample has a unique sample identification number. Composite samples will be cross-referenced in the field book back to the discrete sub-samples included in the composite

Change Requested by:

Todd P. Meant

Date: 5/31/05

Reviewed by BBL Project Manager:

Nancy Guekley

Date: 6/1/05

Comments:

Illinois Environmental Protection Agency Approval:

Date:

Comments:



FIELD CLARIFICATION #1

BBL Project #: 855.38.002

Affected Document: Removal Action Limit Assessment Work Plan, May 2005

Requested Clarification: In meeting with IEPA on June 2, 2005, flow charts were requested to clarify field XRF and lab analytical decisions. Flow charts were reviewed with IEPA on June 6, 2005. Modifications were made as requested by IEPA (clarify Composite and Discrete Samples for lab TAL analyses.) Revised flow charts are attached.

Reason for Change: No change; clarify Work Plan.

Clarification Prepared by: Nancy Gensky

Date: 6/7/05

Reviewed by BBL Project Manager: Nancy Gensky

Date: 6/7/05

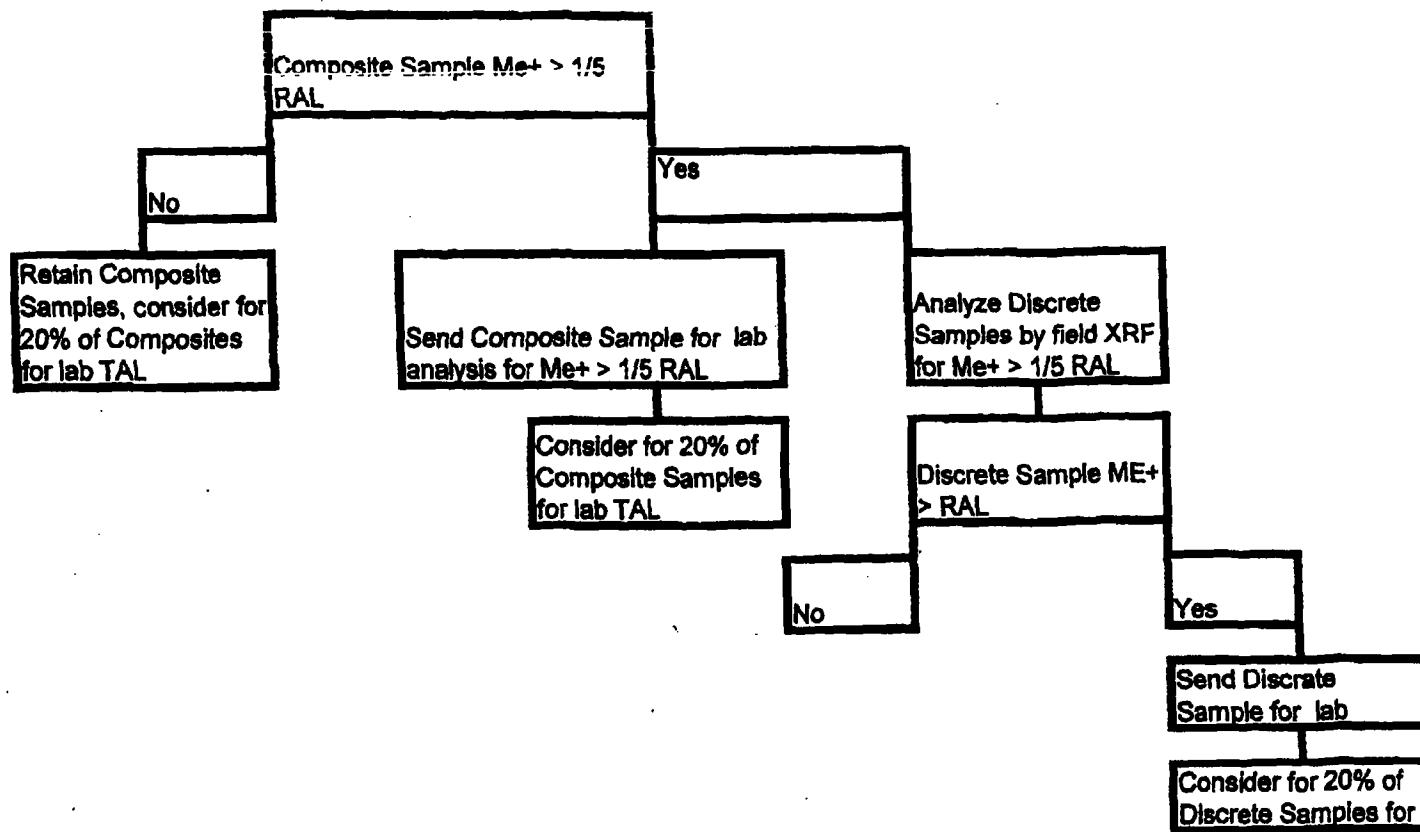
Comments:

Illinois Environmental Protection Agency Approval:

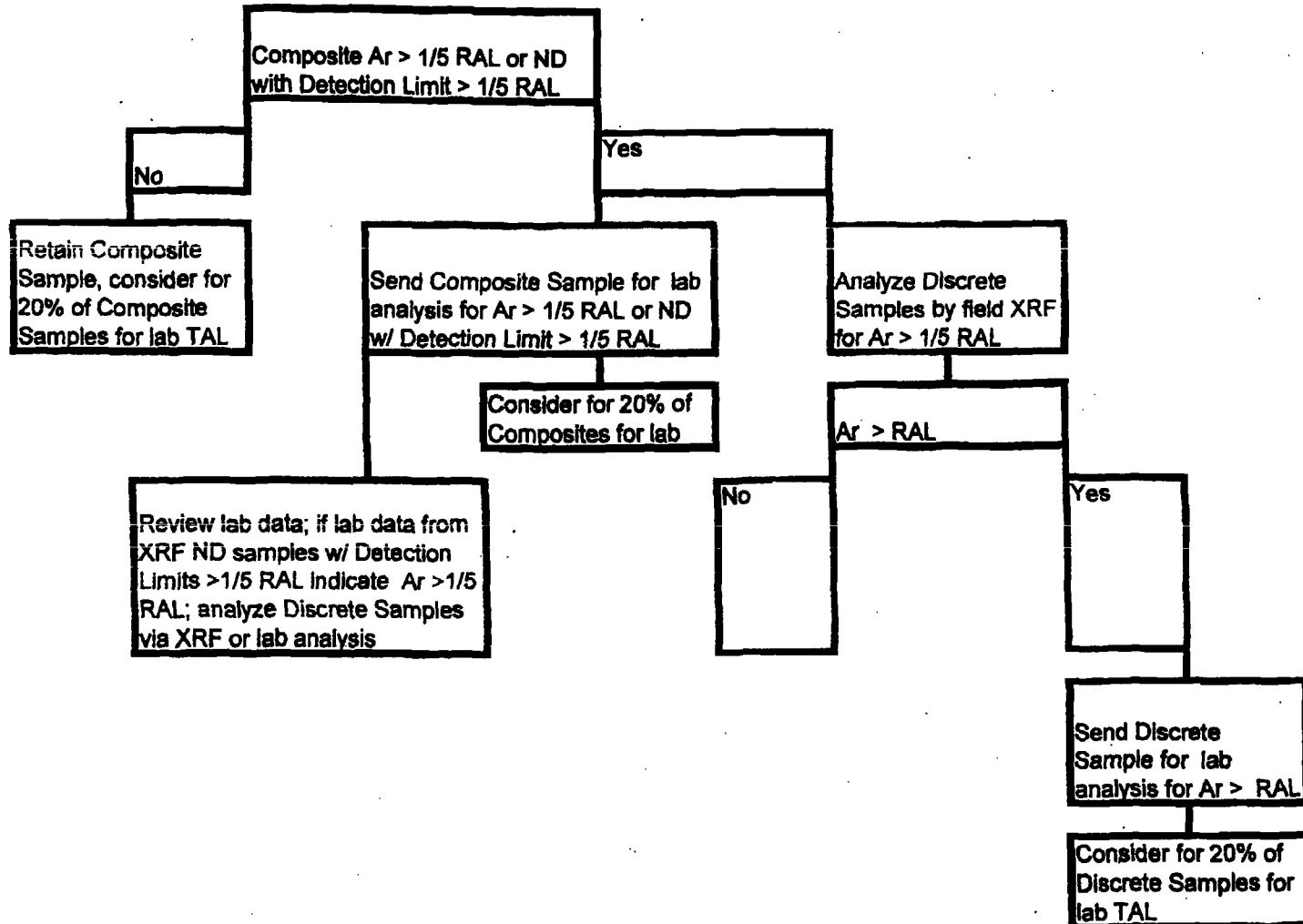
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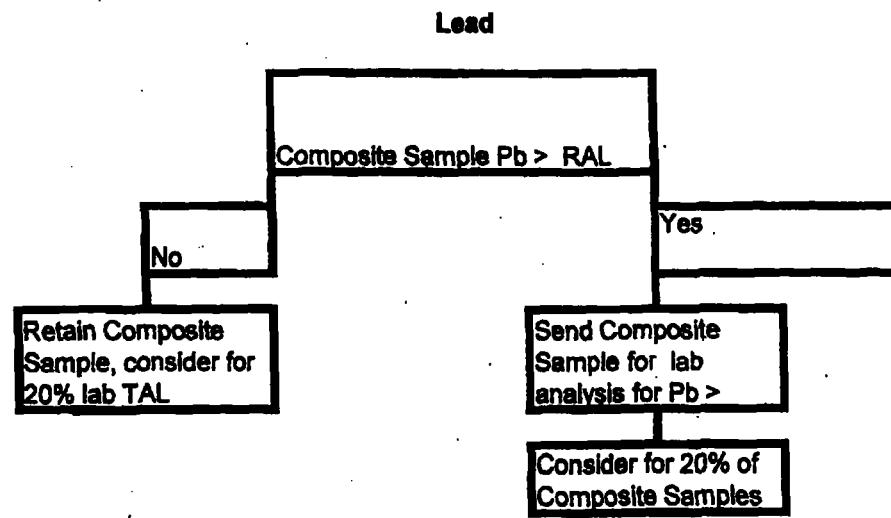
Comments:

Metals other than Arsenic/ Lead



Arsenic







FIELD CHANGE REQUEST #2

BBL Project #: 855.38.002

Affected Document: Removal Action Limit Assessment Field Sampling Plan- Attachment B XRF Protocol, May 2005

Requested Change:

Run soil samples in baggie versus cup. See attached results of comparing results from same samples in baggie vs. cup.

Reason for Change:

Less sample handling/preparation.

Change Requested by: Nancy Gensky

Date: 6-6-05

Reviewed by BBL Project Manager: Nancy Gensky

Date: 6-6-05

Comments:

Illinois Environmental Protection Agency Approval:

Date:

Comments:

Table
Summary of Soil Sample Analytical Results

Sample ID: Sample Depth: Data Collected:	Units	OU4-SS-QCBAG2711-1 06/02/05	OU4-SS-QCBAG2711-2 06/02/05	OU4-SS-QCBAG2711-3 06/02/05	OU4-SS-QCBAG2711-4 06/02/05	OU4-SS-QCBAG2711-5 06/02/05	OU4-SS-QCBAG2711-6 06/02/05	OU4-SS-QCBAG2711-7 06/02/05	OU4-SS-QCCUP2711-1 06/02/05
Metals - XRF									
Arsenic	mg/kg	100.30	92.32	92.28	90.91	82.71	93.48	108.60	94.20
Copper	mg/kg	103.16	91.86	89.01	95.33	82.70	111.54	85.65	87.30
Iron	mg/kg	24678.11	24657.22	25038.73	24973.01	24750.00	24932.46	24922.74	24585.92
Lead	mg/kg	1138.77	1164.71	1138.52	1178.96	1167.36	1167.01	1119.49	1157.90
Zinc	mg/kg	337.04	339.25	323.62	330.68	330.36	329.00	342.62	335.06
	AVG BAG	STD BAG	% RBC	MDL	AVG CUP	STD CUP	% RBC	MDL	
Arsenic	94.66	8.11	90.15	25.47	87.22	9.15	83.07	28.73	
Copper	94.18	10.17	82.62	31.92	94.94	8.46	83.28	26.57	
Iron	24836.04	148.15	85.94	465.20	24878.62	333.37	86.09	1047.42	
Lead	1156.43	20.35	99.52	63.88	1155.01	24.46	99.40	76.79	
Zinc	333.22	38.45	95.21	120.72	457.67	91.66	130.76	162.21	

Table
Summary of Soil Sample Analytical Results

DRAFT

Sample ID: Sample Depth(s): Date Collected:		OU4-88-QCBAG1	OU4-88-QCBAG2	OU4-88-QCBAG3	OU4-88-QCBAG4	OU4-88-OCCUP1	OU4-88-QCCUP2	OU4-88-OCCUP3	OU4-88-QCCUP4
	Date	06/02/05	06/02/05	06/02/05	06/02/05	06/02/05	06/02/05	06/02/05	06/02/05
Metals - XRF									
Antimony	mg/kg	607.12	653.17	627.17	622.45	646.33	643.28	661.91	691.84
Copper	mg/kg	3424.38	3169.98	3031.81	3026.49	3071.87	3114.41	3114.12	3102.31
Iron	mg/kg	37747.57	37542.45	37331.57	37324.70	38000.41	38025.87	38064.85	38093.97
Lead	mg/kg	5183.98	5579.71	5140.87	5422.06	5573.87	5640.95	5683.79	5708.34
Manganese	mg/kg	9411.55	9714.59	9405.07	9446.34	9357.30	9396.95	9333.23	9396.80
Molybdenum	mg/kg	49.59	36.57	39.11	65.18	63.79	75.95	64.73	52.47
Zinc	mg/kg	7316.90	7313.27	7339.10	7219.35	7311.43	7314.90	7302.67	7459.40

AVG BAG	STD BAG	%REC BAG	AVG CUP	%D	%REC CUP	STD CUP	
627.48	19.15	86.94	108.24	3.33	101.80	14.99	
3030.19	36.00	163.47	103.40	0.84	103.76	33.57	
37693.33	201.30	914.95	110.93	37564.04	0.46	111.14	616.44
5530.86	74.77	328.59	99.98	5528.13	0.11	99.93	114.65
9594.36	199.50	905.86	94.99	9580.85	0.33	94.86	217.33
57.61	20.57	93.40	176.73	61.16	4.33	187.62	12.52
7271.18	51.65	234.52	104.59	7299.81	0.96	103.00	132.33



FIELD CHANGE REQUEST #3

BBL Project #: 855.38.002

Affected Document: Removal Action Limit Assessment Field Sampling Plan- Attachment B XRF Protocol, May 2005

Requested Change:

Change the sample flow chart for arsenic (see attached) such that only the Composite samples from the first five properties are submitted for laboratory confirmation as discussed in site meeting on June 28, 2005.

Reason for Change:

This change is requested because the primary use of the XRF and laboratory composite samples for arsenic was to trigger the analysis of discrete samples, which were already analyzed via XRF.

Change Requested by: Nancy Gensky

Date: 6-28-05

Reviewed by BBL Project Manager: Nancy Gensky

Date: 6-28-05

Comments:

Illinois Environmental Protection Agency Approval:

Date:

Comments:

Appendix B

Property-Specific Data Tables and Figures

Table 1A

**New Jersey Zinc/Mobil Chemical Site
DePue, Illinois
Removal Action Limit Assessment Report**

Soil Sample Analytical Results for Property SS-01 (IDPH Location W11) - Composite Samples

Sample ID: Sample Depth (Inches): Date Collected:	Residential RAL	Units	OU4-SS-01-COMP1(0-1) 0 - 1 05/31/05	OU4-SS-01-COMP1(1-6) 1 - 6 05/31/05	OU4-SS-01-COMP1(6-12) 6 - 12 05/31/05	OU4-SS-01-COMP1(12-18) 12 - 18 05/31/05
Metals - XRF (USEPA SW-846 6200)						
Arsenic	43	mg/kg	29.0	15.9	7.46 U	7.12
Barium	55000	mg/kg	2450	1750	260 U	278
Cadmium	390	mg/kg	65.1	63.8	35.3 U	47.9
Chromium	3900	mg/kg	125 J	115 U	97.1 U	97.8 U
Cobalt	47000	mg/kg	101 U	103 U	90.9 U	97.8 U
Copper	31000	mg/kg	30.9 J	46.6 J	13.9 J	11.7 UJ
Iron	230000	mg/kg	16300 U	16100 U	14500 U	16900 U
Lead	1200	mg/kg	646 J	437 J	103 J	32.4 J
Manganese	18000	mg/kg	467 J	575 J	428 J	310 J
Mercury	78	mg/kg	10.8 UJ	10.3 UJ	8.39 UJ	7.35 UJ
Nickel	16000	mg/kg	23.3 U	22.9 U	20.0 U	20.9 U
Selenium	3900	mg/kg	3.38 U	3.11 U	2.46 U	2.47 U
Silver	3900	mg/kg	26.8 UJ	26.9 UJ	24.6 UJ	24.8 UJ
Zinc	230000	mg/kg	2950 J	2420 J	659 J	116 J
Metals (USEPA SW-846 6000/7000)						
Aluminum	--	mg/kg	8330	NA	NA	NA
Antimony	--	mg/kg	6.62 U	NA	NA	NA
Arsenic	43	mg/kg	9.05	8.82	NA	NA
Barium	55000	mg/kg	4960	NA	NA	NA
Beryllium	--	mg/kg	0.551	NA	NA	NA
Cadmium	390	mg/kg	35.3	NA	NA	NA
Calcium	--	mg/kg	8950	NA	NA	NA
Chromium	3900	mg/kg	14.5	NA	NA	NA
Cobalt	47000	mg/kg	6.97	NA	NA	NA
Copper	31000	mg/kg	43.5	NA	NA	NA
Iron	230000	mg/kg	15200	NA	NA	NA
Lead	1200	mg/kg	612	NA	NA	NA
Magnesium	--	mg/kg	4280	NA	NA	NA
Manganese	18000	mg/kg	461	NA	NA	NA
Mercury	78	mg/kg	0.101 B	NA	NA	NA
Nickel	16000	mg/kg	16.4	NA	NA	NA
Potassium	--	mg/kg	1380	NA	NA	NA
Selenium	3900	mg/kg	1.10 U	NA	NA	NA
Silver	3900	mg/kg	1.04 B	NA	NA	NA
Sodium	--	mg/kg	96.6 J	NA	NA	NA
Thallium	--	mg/kg	1.10 U	NA	NA	NA
Vanadium	--	mg/kg	21.3	NA	NA	NA
Zinc	230000	mg/kg	2540	NA	NA	NA

Sample ID:	Sample Depth (inches):	Residential RAL	Units	0 - 1 05/31/05	0 - 6 05/31/05	06/07/05 6 - 12 05/31/05	04-S-01-COMP2(6-12) 04-S-01-COMP2(1-6)	04-S-01-COMP2(12-18) 04-S-01-COMP2(1-6)	Metals - XRF (USEPA SW-846 6200)
Soil Sample Analytical Results for Property SS-01 (IDPH Location W11) - Composite Samples									
Arsenic	43	mg/kg	18.8	27.4	6.60	297	245 U	4.49 U	
Barium	55000	mg/kg	2060	1610	6.60				
Cadmium	390	mg/kg	41.0	39.3 U	34.5 U	92.4 U	90.0 U	34.4 U	
Chromium	3900	mg/kg	118 U	120 U	85.0 U	85.7 U			
Cobalt	47000	mg/kg	108 U	115 U	11.5 U	11.3 U			
Copper	31000	mg/kg	26.9 J	16.0 J	16.0 J	11.5 U			
Iron	230000	mg/kg	17600 U	19800 U	12600 U	13200 U			
Lead	1200	mg/kg	629 J	405 J	28.3 U	20.7 U			
Manganese	18000	mg/kg	480 J	499 J	479 J	354 U			
Mercury	78	mg/kg	104 UJ	10.6 UJ	7.35 UJ	7.29 UJ			
Nickel	16000	mg/kg	23.5 U	25.0 U	19.4 U	19.8 U			
Selenium	3900	mg/kg	3.27 U	3.24 U	2.27 U	2.21 U			
Silver	3900	mg/kg	3.27 U	3.24 U	2.27 U	2.21 U			
Zinc	230000	mg/kg	27.1 UJ	27.4 UJ	24.1 UJ	24.0 UJ			
Metals (USEPA SW-846 6000/7000)									
Antimony	--	mg/kg	NA	8360	NA	NA	NA	NA	
Arsenic	43	mg/kg	10.3	13.8	0.604	NA	NA	NA	
Barium	55000	mg/kg	NA	2340	NA	NA	NA	NA	
Beryllium	--	mg/kg	NA	NA	NA	NA	NA	NA	
Cadmium	--	mg/kg	NA	0.604	NA	NA	NA	NA	
Chromium	--	mg/kg	NA	5460	NA	NA	NA	NA	
Cobalt	47000	mg/kg	NA	14.7	NA	NA	NA	NA	
Copper	31000	mg/kg	NA	5460	NA	NA	NA	NA	
Iron	230000	mg/kg	NA	6.72	NA	NA	NA	NA	
Lead	1200	mg/kg	NA	314	NA	NA	NA	NA	
Manganese	--	mg/kg	NA	3680	NA	NA	NA	NA	
Magnesium	--	mg/kg	NA	484	NA	NA	NA	NA	
Merkury	78	mg/kg	NA	0.196	NA	NA	NA	NA	
Nickel	16000	mg/kg	NA	1.96	NA	NA	NA	NA	
Potassium	--	mg/kg	NA	1450	NA	NA	NA	NA	
Silver	3900	mg/kg	NA	13.9	NA	NA	NA	NA	
Sodium	3900	mg/kg	NA	0.387 B	NA	NA	NA	NA	
Sulfur	--	mg/kg	NA	1.09 U	NA	NA	NA	NA	
Thallium	--	mg/kg	NA	1.09 U	NA	NA	NA	NA	
Vanadium	--	mg/kg	NA	1.97	NA	NA	NA	NA	
Zinc	230000	mg/kg	NA	1910	NA	NA	NA	NA	

Table 1A

New Jersey Zinc/Mobil Chemical Site
DePue, Illinois
Removal Action Limit Assessment Report

Soil Sample Analytical Results for Property SS-01 (IDPH Location W11) - Composite Samples

Sample ID: Sample Depth (Inches): Date Collected:	Residential RAL	Units	OU4-SS-01-COMP3(0-1) 0 - 1 05/31/05	OU4-SS-01-COMP3(1-6) 1 - 6 05/31/05	OU4-SS-01-COMP3(6-12) 6 - 12 05/31/05	OU4-SS-01-COMP3(12-18) 12 - 18 05/31/05
Metals - XRF (USEPA SW-846 6200)						
Arsenic	43	mg/kg	12.1	18.9	34.0	14.4
Barium	55000	mg/kg	1340	1400	895 U	591 U
Cadmium	390	mg/kg	87.9 J	61.0 J	38.4 U	44.2 J
Chromium	3900	mg/kg	115 U	113 U	115 U	108 U
Cobalt	47000	mg/kg	121 JQ	107 U	125 U	100 U
Copper	31000	mg/kg	22.6 J	35.5 J	29.4 J	13.6 U
Iron	230000	mg/kg	18700 U	18000 U	24300	16300 U
Lead	1200	mg/kg	287	230	198	80.2
Manganese	18000	mg/kg	490 UJ	485 UJ	592 UJ	431 UJ
Mercury	78	mg/kg	10.2 UJ	9.29 UJ	9.62 UJ	8.56 UJ
Nickel	16000	mg/kg	24.3 U	24.0 U	25.8 U	22.3 U
Selenium	3900	mg/kg	3.00 U	3.02 U	2.90 U	2.77 U
Silver	3900	mg/kg	26.7 UJ	26.6 UJ	27.1 UJ	26.9 UJ
Zinc	230000	mg/kg	2620 J	2220 J	1190 J	647 J
Metals (USEPA SW-846 6000/7000)						
Aluminum	--	mg/kg	6160	NA	NA	NA
Antimony	--	mg/kg	6.45 U	NA	NA	NA
Arsenic	43	mg/kg	6.30	11.5	23.0	12.3
Barium	55000	mg/kg	1340	NA	NA	NA
Beryllium	--	mg/kg	0.362	NA	NA	NA
Cadmium	390	mg/kg	17.6	NA	NA	NA
Calcium	--	mg/kg	6920	NA	NA	NA
Chromium	3900	mg/kg	11.3	NA	NA	NA
Cobalt	47000	mg/kg	4.44 B	NA	NA	NA
Copper	31000	mg/kg	24.6	NA	NA	NA
Iron	230000	mg/kg	9980	NA	NA	NA
Lead	1200	mg/kg	168	NA	NA	NA
Magnesium	--	mg/kg	4060	NA	NA	NA
Manganese	18000	mg/kg	334	NA	NA	NA
Mercury	78	mg/kg	0.0700 B	NA	NA	NA
Nickel	16000	mg/kg	10.9	NA	NA	NA
Potassium	--	mg/kg	1140	NA	NA	NA
Selenium	3900	mg/kg	1.08 U	NA	NA	NA
Silver	3900	mg/kg	0.342 B	NA	NA	NA
Sodium	--	mg/kg	55.3 J	NA	NA	NA
Thallium	--	mg/kg	1.08 U	NA	NA	NA
Vanadium	--	mg/kg	14.8	NA	NA	NA
Zinc	230000	mg/kg	1420	NA	NA	NA

Table 1A

**New Jersey Zinc/Mobil Chemical Site
DePue, Illinois
Removal Action Limit Assessment Report**

Soil Sample Analytical Results for Property SS-01 (IDPH Location W11) - Composite Samples

Sample ID: Sample Depth(inches): Date Collected:	Residential RAL	Units	OU4-SS-01-COMP4(0-1) 0 - 1 06/01/05	OU4-SS-01-COMP4(1-6) 1 - 6 06/01/05	OU4-SS-01-COMP4(6-12) 6 - 12 06/01/05	OU4-SS-01-COMP4(12-18) 12 - 18 06/01/05
Metals - XRF (USEPA SW-846 6200)						
Arsenic	43	mg/kg	22.4	26.3	7.94	19.0
Barium	55000	mg/kg	2050	1860	266 U	294 U
Cadmium	390	mg/kg	42.2 J	39.8 J	35.2 U	40.1 U
Chromium	3900	mg/kg	121 U	119 U	112 J	119 U
Cobalt	47000	mg/kg	110 U	105 U	99.1 U	120 U
Copper	31000	mg/kg	36.2 J	18.0 J	12.6 U	13.6 U
Iron	230000	mg/kg	19200 U	17100 U	16600 U	21500 U
Lead	1200	mg/kg	547	369	85.8	80.6
Manganese	18000	mg/kg	523 UJ	558 UJ	418 UJ	402 UJ
Mercury	78	mg/kg	10.4 UJ	10.6 UJ	8.31 UJ	8.74 UJ
Nickel	16000	mg/kg	24.0 U	23.6 U	21.6 U	25.0 U
Selenium	3900	mg/kg	3.34 U	3.10 U	2.33 U	2.74 U
Silver	3900	mg/kg	26.7 UJ	26.9 UJ	24.7 UJ	28.2 UJ
Zinc	230000	mg/kg	2970 J	2860 J	680 J	374 J
Metals (USEPA SW-846 6000/7000)						
Aluminum	--	mg/kg	NA	NA	NA	NA
Antimony	--	mg/kg	NA	NA	NA	NA
Arsenic	43	mg/kg	10.1	10.6	NA	11.1
Barium	55000	mg/kg	NA	NA	NA	NA
Beryllium	--	mg/kg	NA	NA	NA	NA
Cadmium	390	mg/kg	NA	NA	NA	NA
Calcium	--	mg/kg	NA	NA	NA	NA
Chromium	3900	mg/kg	NA	NA	NA	NA
Cobalt	47000	mg/kg	NA	NA	NA	NA
Copper	31000	mg/kg	NA	NA	NA	NA
Iron	230000	mg/kg	NA	NA	NA	NA
Lead	1200	mg/kg	NA	NA	NA	NA
Magnesium	--	mg/kg	NA	NA	NA	NA
Manganese	18000	mg/kg	NA	NA	NA	NA
Mercury	78	mg/kg	NA	NA	NA	NA
Nickel	16000	mg/kg	NA	NA	NA	NA
Potassium	--	mg/kg	NA	NA	NA	NA
Selenium	3900	mg/kg	NA	NA	NA	NA
Silver	3900	mg/kg	NA	NA	NA	NA
Sodium	--	mg/kg	NA	NA	NA	NA
Thallium	--	mg/kg	NA	NA	NA	NA
Vanadium	--	mg/kg	NA	NA	NA	NA
Zinc	230000	mg/kg	NA	NA	NA	NA

Table 1A

**New Jersey Zinc/Mobil Chemical Site
DePue, Illinois
Removal Action Limit Assessment Report**

Soil Sample Analytical Results for Property SS-01 (IDPH Location W11) - Composite Samples

Sample ID: Sample Depth(Inches): Date Collected:	Residential RAL	Units	OU4-SS-01-COMP5(0-1) 0 - 1 06/01/05	OU4-SS-01-COMP5(1-6) 1 - 6 06/01/05	OU4-SS-01-COMP5(6-12) 6 - 12 06/01/05	OU4-SS-01-COMP5(12-18) 12 - 18 06/01/05
Metals - XRF (USEPA SW-846 6200)						
Arsenic	43	mg/kg	17.0 U	17.2	9.69	4.51 U
Barium	55000	mg/kg	1100 U	1540	518 U	243 U
Cadmium	390	mg/kg	38.4 U	39.5 U	39.0 J	34.9 U
Chromium	3900	mg/kg	158 J	146 J	105 U	90.2 U
Cobalt	47000	mg/kg	109 U	108 U	96.1 U	83.7 U
Copper	31000	mg/kg	32.5 J	28.2 J	13.2 U	11.7 U
Iron	230000	mg/kg	18200 U	17300 U	14900 U	12400 U
Lead	1200	mg/kg	615	573	130	20.9 U
Manganese	18000	mg/kg	526 UJ	409 UJ	443 UJ	343 UJ
Mercury	78	mg/kg	10.7 UJ	10.5 UJ	8.70 UJ	7.40 UJ
Nickel	16000	mg/kg	24.4 U	24.3 U	21.3 U	21.1 JQ
Selenium	3900	mg/kg	3.35 U	3.31 U	2.84 U	2.38 U
Silver	3900	mg/kg	26.9 UJ	27.9 UJ	26.5 UJ	24.2 UJ
Zinc	230000	mg/kg	1890 J	2450 J	990 J	98.8 J
Metals (USEPA SW-846 6000/7000)						
Aluminum	--	mg/kg	10000	NA	NA	NA
Antimony	--	mg/kg	6.49 U	NA	NA	NA
Arsenic	43	mg/kg	8.90	10.0	5.63	NA
Barium	55000	mg/kg	2050	NA	NA	NA
Beryllium	--	mg/kg	0.482	NA	NA	NA
Cadmium	390	mg/kg	16.3	NA	NA	NA
Calcium	--	mg/kg	11700	NA	NA	NA
Chromium	3900	mg/kg	24.5	NA	NA	NA
Cobalt	47000	mg/kg	7.55	NA	NA	NA
Copper	31000	mg/kg	36.1	NA	NA	NA
Iron	230000	mg/kg	16100	NA	NA	NA
Lead	1200	mg/kg	613	NA	NA	NA
Magnesium	--	mg/kg	7670	NA	NA	NA
Manganese	18000	mg/kg	478	NA	NA	NA
Mercury	78	mg/kg	0.0755 B	NA	NA	NA
Nickel	16000	mg/kg	19.2	NA	NA	NA
Potassium	--	mg/kg	1460	NA	NA	NA
Selenium	3900	mg/kg	1.08 U	NA	NA	NA
Silver	3900	mg/kg	0.376 B	NA	NA	NA
Sodium	--	mg/kg	126 J	NA	NA	NA
Thallium	--	mg/kg	1.08 U	NA	NA	NA
Vanadium	--	mg/kg	28.8	NA	NA	NA
Zinc	230000	mg/kg	2130	NA	NA	NA

Table 1B

**New Jersey Zinc/Mobil Chemical Site
DePue, Illinois
Removal Action Limit Assessment Report**

Soil Sample Analytical Results for Property SS-01 (IDPH Location W11) - Discrete Samples

Sample ID: Sample Depth(Inches): Date Collected:	Residential RAL	Units	OU4-SS-01-01(0-1) 0 - 1 06/20/05	OU4-SS-01-01(1-6) 1 - 6 06/20/05	OU4-SS-01-02(0-1) 0 - 1 06/20/05	OU4-SS-01-02(1-6) 1 - 6 06/20/05	OU4-SS-01-03(0-1) 0 - 1 06/20/05	OU4-SS-01-03(1-6) 1 - 6 06/20/05
Metals - XRF (USEPA SW-846 6200)								
Arsenic	43	mg/kg	19.0	30.5	20.2	11.1 U	25.4	16.4 U
Cadmium	390	mg/kg	NA	NA	NA	NA	NA	NA
Metals (USEPA SW-846 6000/7000)								
Aluminum	--	mg/kg	NA	NA	NA	NA	NA	NA
Antimony	--	mg/kg	NA	NA	NA	NA	NA	NA
Arsenic	43	mg/kg	NA	NA	NA	NA	NA	NA
Barium	55000	mg/kg	NA	NA	NA	NA	NA	NA
Beryllium	--	mg/kg	NA	NA	NA	NA	NA	NA
Cadmium	390	mg/kg	NA	NA	NA	NA	NA	NA
Calcium	--	mg/kg	NA	NA	NA	NA	NA	NA
Chromium	3900	mg/kg	NA	NA	NA	NA	NA	NA
Cobalt	47000	mg/kg	NA	NA	NA	NA	NA	NA
Copper	31000	mg/kg	NA	NA	NA	NA	NA	NA
Iron	230000	mg/kg	NA	NA	NA	NA	NA	NA
Lead	1200	mg/kg	NA	NA	NA	NA	NA	NA
Magnesium	--	mg/kg	NA	NA	NA	NA	NA	NA
Manganese	18000	mg/kg	NA	NA	NA	NA	NA	NA
Mercury	78	mg/kg	NA	NA	NA	NA	NA	NA
Nickel	16000	mg/kg	NA	NA	NA	NA	NA	NA
Potassium	--	mg/kg	NA	NA	NA	NA	NA	NA
Selenium	3900	mg/kg	NA	NA	NA	NA	NA	NA
Silver	3900	mg/kg	NA	NA	NA	NA	NA	NA
Sodium	--	mg/kg	NA	NA	NA	NA	NA	NA
Thallium	--	mg/kg	NA	NA	NA	NA	NA	NA
Vanadium	--	mg/kg	NA	NA	NA	NA	NA	NA
Zinc	230000	mg/kg	NA	NA	NA	NA	NA	NA

Table 1B

**New Jersey Zinc/Mobil Chemical Site
DePue, Illinois
Removal Action Limit Assessment Report**

Soil Sample Analytical Results for Property SS-01 (IDPH Location W11) - Discrete Samples

Sample ID:		Units	OU4-SS-01-04(0-1)	OU4-SS-01-04(1-6)	OU4-SS-01-05(0-1)	OU4-SS-01-05(1-6)	OU4-SS-01-06(0-1)	OU4-SS-01-06(1-6)
Sample Depth(Inches):			0 - 1 06/20/05	1 - 6 06/20/05	0 - 1 06/20/05	1 - 6 06/20/05	0 - 1 06/20/05	1 - 6 06/20/05
Metals - XRF (USEPA SW-846 6200)								
Arsenic	43	mg/kg	21.6	20.8	37.1	21.8 [17.1]	27.6	30.4
Cadmium	390	mg/kg	NA	NA	NA	NA	NA	NA
Metals (USEPA SW-846 6000/7000)								
Aluminum	--	mg/kg	NA	NA	NA	NA	NA	NA
Antimony	--	mg/kg	NA	NA	NA	NA	NA	NA
Arsenic	43	mg/kg	NA	NA	NA	NA	NA	NA
Barium	55000	mg/kg	NA	NA	NA	NA	NA	NA
Beryllium	--	mg/kg	NA	NA	NA	NA	NA	NA
Cadmium	390	mg/kg	NA	NA	NA	NA	NA	NA
Calcium	--	mg/kg	NA	NA	NA	NA	NA	NA
Chromium	3900	mg/kg	NA	NA	NA	NA	NA	NA
Cobalt	47000	mg/kg	NA	NA	NA	NA	NA	NA
Copper	31000	mg/kg	NA	NA	NA	NA	NA	NA
Iron	230000	mg/kg	NA	NA	NA	NA	NA	NA
Lead	1200	mg/kg	NA	NA	NA	NA	NA	NA
Magnesium	--	mg/kg	NA	NA	NA	NA	NA	NA
Manganese	18000	mg/kg	NA	NA	NA	NA	NA	NA
Mercury	78	mg/kg	NA	NA	NA	NA	NA	NA
Nickel	16000	mg/kg	NA	NA	NA	NA	NA	NA
Potassium	--	mg/kg	NA	NA	NA	NA	NA	NA
Selenium	3900	mg/kg	NA	NA	NA	NA	NA	NA
Silver	3900	mg/kg	NA	NA	NA	NA	NA	NA
Sodium	--	mg/kg	NA	NA	NA	NA	NA	NA
Thallium	--	mg/kg	NA	NA	NA	NA	NA	NA
Vanadium	--	mg/kg	NA	NA	NA	NA	NA	NA
Zinc	230000	mg/kg	NA	NA	NA	NA	NA	NA

Table 1B

**New Jersey Zinc/Mobil Chemical Site
DePue, Illinois
Removal Action Limit Assessment Report**

Soil Sample Analytical Results for Property SS-01 (IDPH Location W11) - Discrete Samples

Sample ID: Sample Depth(Inches): Date Collected:	Residential RAL	Units	OU4-SS-01-07(0-1) 0 - 1 06/20/05	OU4-SS-01-07(1-6) 1 - 6 06/20/05	OU4-SS-01-08(0-1) 0 - 1 06/20/05	OU4-SS-01-08(1-6) 1 - 6 06/01/05	OU4-SS-01-09(0-1) 0 - 1 06/20/05	OU4-SS-01-09(1-6) 1 - 6 06/20/05
Metals - XRF (USEPA SW-846 6200)								
Arsenic	43	mg/kg	17.7	9.33	13.2 U	65.3	10.6 U	42.8
Cadmium	390	mg/kg	NA	NA	NA	NA	NA	NA
Metals (USEPA SW-846 6000/7000)								
Aluminum	--	mg/kg	NA	NA	NA	10700	NA	NA
Antimony	--	mg/kg	NA	NA	NA	6.72 U	NA	NA
Arsenic	43	mg/kg	NA	NA	NA	38.7	NA	NA
Barium	55000	mg/kg	NA	NA	NA	3040	NA	NA
Beryllium	--	mg/kg	NA	NA	NA	1.13	NA	NA
Cadmium	390	mg/kg	NA	NA	NA	25.4	NA	NA
Calcium	--	mg/kg	NA	NA	NA	4080	NA	NA
Chromium	3900	mg/kg	NA	NA	NA	16.6	NA	NA
Cobalt	47000	mg/kg	NA	NA	NA	4.91 J	NA	NA
Copper	31000	mg/kg	NA	NA	NA	32.0 J	NA	NA
Iron	230000	mg/kg	NA	NA	NA	23000	NA	NA
Lead	1200	mg/kg	NA	NA	NA	291	NA	NA
Magnesium	--	mg/kg	NA	NA	NA	2370	NA	NA
Manganese	18000	mg/kg	NA	NA	NA	462	NA	NA
Mercury	78	mg/kg	NA	NA	NA	0.0850 J	NA	NA
Nickel	16000	mg/kg	NA	NA	NA	16.2	NA	NA
Potassium	--	mg/kg	NA	NA	NA	2050	NA	NA
Selenium	3900	mg/kg	NA	NA	NA	1.12 U	NA	NA
Silver	3900	mg/kg	NA	NA	NA	0.839 J	NA	NA
Sodium	--	mg/kg	NA	NA	NA	201 J	NA	NA
Thallium	--	mg/kg	NA	NA	NA	1.12 U	NA	NA
Vanadium	--	mg/kg	NA	NA	NA	23.7	NA	NA
Zinc	230000	mg/kg	NA	NA	NA	1880	NA	NA

Table 1B

**New Jersey Zinc/Mobil Chemical Site
DePue, Illinois
Removal Action Limit Assessment Report**

Soil Sample Analytical Results for Property SS-01 (IDPH Location W11) - Discrete Samples

Sample ID: Sample Depth(Inches): Date Collected:	Residential RAL	Units	OU4-SS-01-10(0-1) 0 - 1 06/20/05	OU4-SS-01-10(1-6) 1 - 6 06/20/05	OU4-SS-01-11(0-1) 0 - 1 06/23/05	OU4-SS-01-11(1-6) 1 - 6 06/20/05	OU4-SS-01-11(6-12) 6 - 12 06/01/05	OU4-SS-01-11(12-18) 12 - 18 06/20/05
Metals - XRF (USEPA SW-846 6200)								
Arsenic	43	mg/kg	17.6	20.3	21.6 J	12.3	69.0	5.42
Cadmium	390	mg/kg	NA	NA	60.4 U	NA	NA	NA
Metals (USEPA SW-846 6000/7000)								
Aluminum	--	mg/kg	NA	NA	NA	NA	NA	NA
Antimony	--	mg/kg	NA	NA	NA	NA	NA	NA
Arsenic	43	mg/kg	NA	NA	NA	NA	50.8 [47.6 J]	NA
Barium	55000	mg/kg	NA	NA	NA	NA	NA	NA
Beryllium	--	mg/kg	NA	NA	NA	NA	NA	NA
Cadmium	390	mg/kg	NA	NA	NA	NA	NA	NA
Calcium	--	mg/kg	NA	NA	NA	NA	NA	NA
Chromium	3900	mg/kg	NA	NA	NA	NA	NA	NA
Cobalt	47000	mg/kg	NA	NA	NA	NA	NA	NA
Copper	31000	mg/kg	NA	NA	NA	NA	NA	NA
Iron	230000	mg/kg	NA	NA	NA	NA	NA	NA
Lead	1200	mg/kg	NA	NA	NA	NA	NA	NA
Magnesium	--	mg/kg	NA	NA	NA	NA	NA	NA
Manganese	18000	mg/kg	NA	NA	NA	NA	NA	NA
Mercury	78	mg/kg	NA	NA	NA	NA	NA	NA
Nickel	16000	mg/kg	NA	NA	NA	NA	NA	NA
Potassium	--	mg/kg	NA	NA	NA	NA	NA	NA
Selenium	3900	mg/kg	NA	NA	NA	NA	NA	NA
Silver	3900	mg/kg	NA	NA	NA	NA	NA	NA
Sodium	--	mg/kg	NA	NA	NA	NA	NA	NA
Thallium	--	mg/kg	NA	NA	NA	NA	NA	NA
Vanadium	--	mg/kg	NA	NA	NA	NA	NA	NA
Zinc	230000	mg/kg	NA	NA	NA	NA	NA	NA